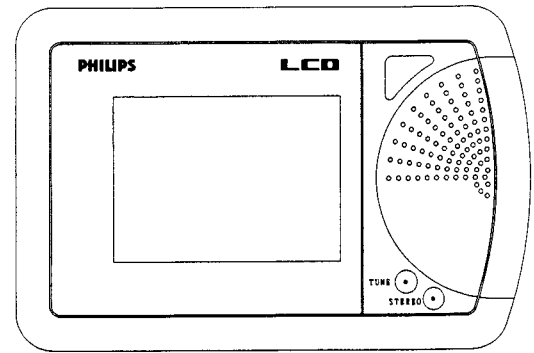


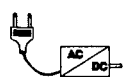
Service  
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Service



# Service Manual

CHASSIS LCD3-ECO

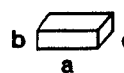
- GB** Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
- NL** Veiligheidsbepalingen vereisen, dat het apparaat in zij oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.
- D** Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden. Für Reparaturen sind Original-Ersatzteile zu verwenden.
- F** Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
- I** Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio a quelli specificati.



220V<sub>AC</sub> 8W  
240V<sub>AC</sub> 8W (-/05R)



9V<sub>DC</sub> 3,5W



a x b x c  
136x49x90mm



150mW



PAL BG (-/02R/10R)  
PAL I (-/05R)

A/V

Input level:  
Video 1V<sub>pp</sub>  
Audio 500mVrms



430g (with battery)



TEPZ5-001A

TV Channels  
VHF: 2-12  
UHF: 21-69

Radio Bands  
AM 531-1602KHz  
FM 88-108MHz



**PHILIPS**

## Spare parts list / Stückliste / Liste

---

### Cabinet parts

001B	4822 432 10933	Rear case -/02R
001B	4822 432 10938	Rear case -/05R/10R
002B	4822 290 81361	+,- Terminal plate
003B	4822 290 81464	+,- Terminal plate
004B	4822 462 10501	Stand
005B	4822 492 71004	Spring for stand
007B	4822 290 81465	+ Terminal spring
008B	4822 290 81466	- Terminal spring
009B	4822 290 81467	CHG. Terminal
010B	4822 502 13877	Screw
020B	4822 290 81468	Contact plate for rod ant.
021B	4822 256 91831	Holder
022B	4822 380 20422	Reflector
023B	4822 466 70731	Diffuser
024B	4822 413 31674	Knob volume
025B	4822 502 13879	Screw
026B	4822 411 61846	Band knob
027B	4822 411 61845	Power knob
028B	4822 410 61637	Button strip
029B	4822 502 13203	Screw
030B	4822 413 31675	Tuning knob
031B	4822 532 12123	Bush
032B	4822 502 13878	Screw
033B	4822 528 90834	Rollor
034B	4822 333 30222	Tuning dial
035B	4822 502 13881	Screw
050B	4822 432 10932	Front case
051B	4822 450 61808	Display window -/02R/10R
051B	4822 450 61821	Display window -/05R
052B	4822 450 61809	Tuning window
053B	4822 381 11292	LED Lens
054B	4822 502 13203	Screw
055B	4822 417 11152	Bolt
058B	4822 502 13201	Screw
059B	4822 404 31224	Bracket
062B	4822 502 13928	Screw
063B	4822 502 11875	Screw
064B	4822 502 13928	Screw
066B	4822 432 10934	Lid

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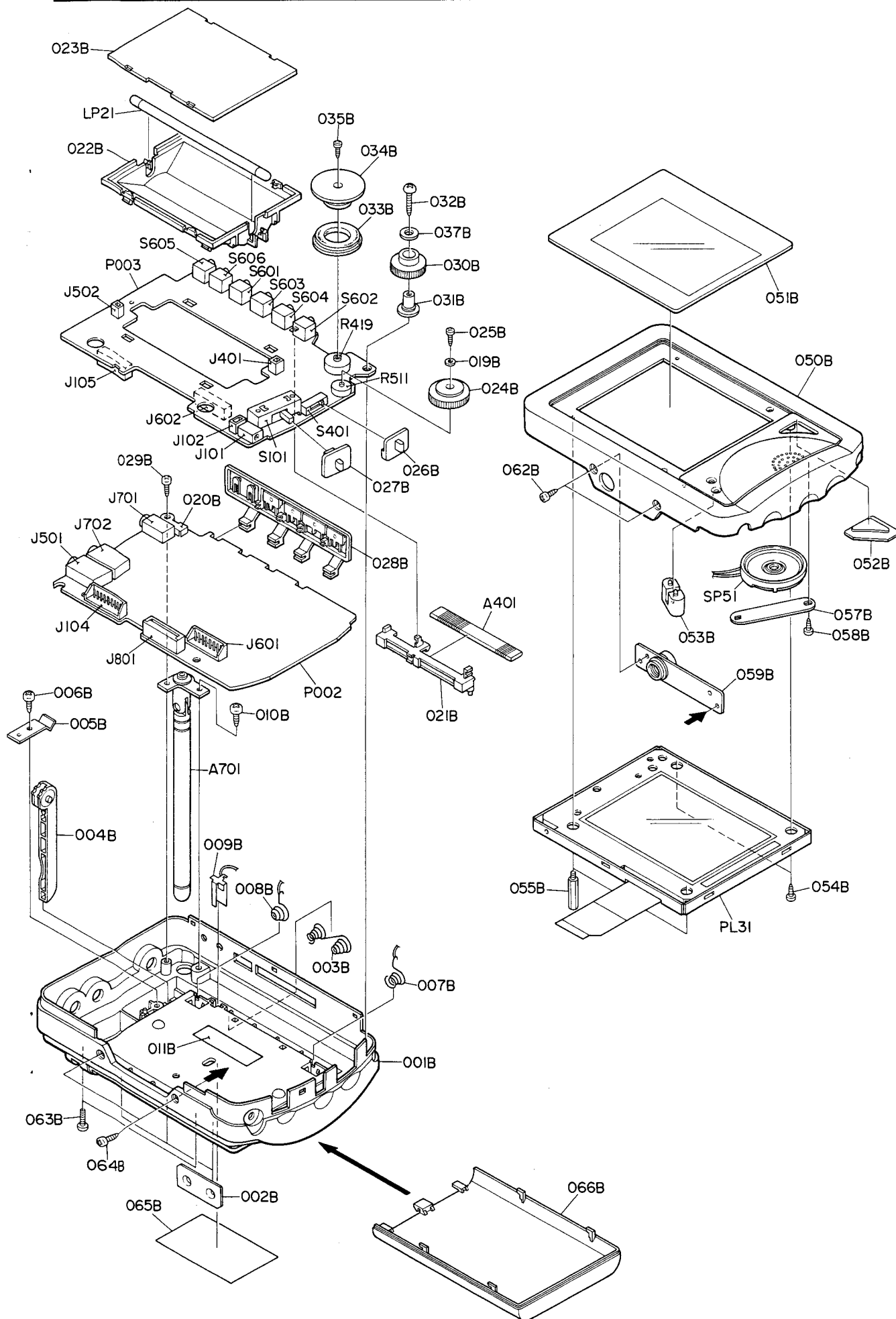
### Accessories

4822 218 20877	AC Adaptor for 220V
4822 272 10272	AC Adaptor for 240V
4822 138 10305	Rechargeable battery pack (SBC3621)
4822 015 20223	Car adaptor (SBC3601)
4822 321 21602	Audio video cable (SBC1059)
4822 015 20307	Camera mounting bracket (SBC3613)
4822 263 50183	Antenna adaptor (22AV5262)
4822 015 20383	Stereo earphone (SBC3137)

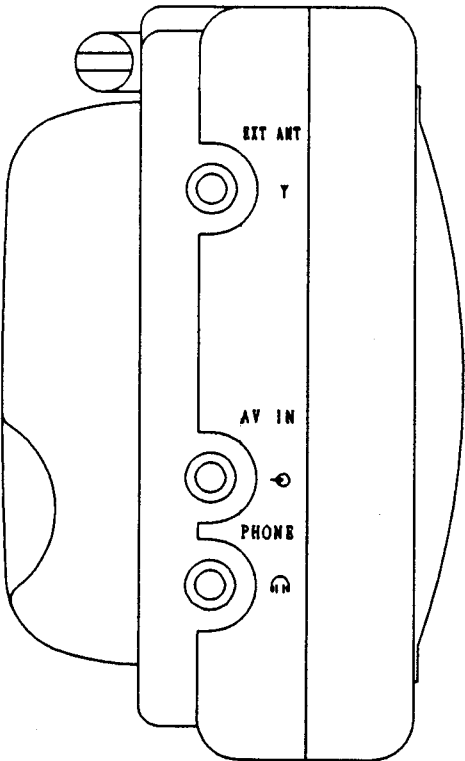
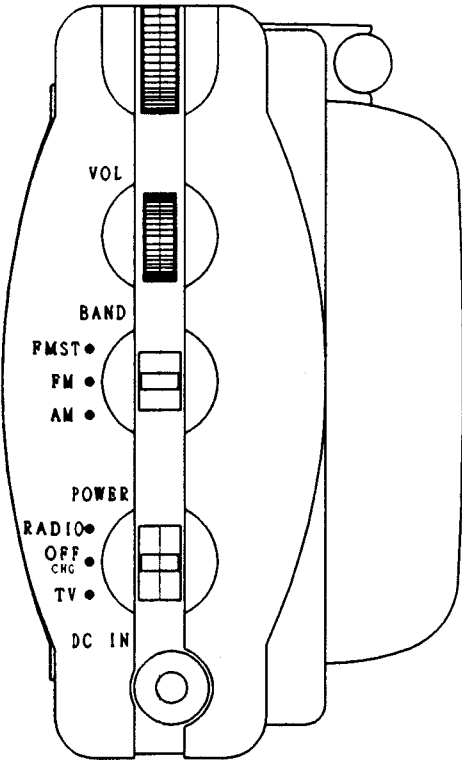
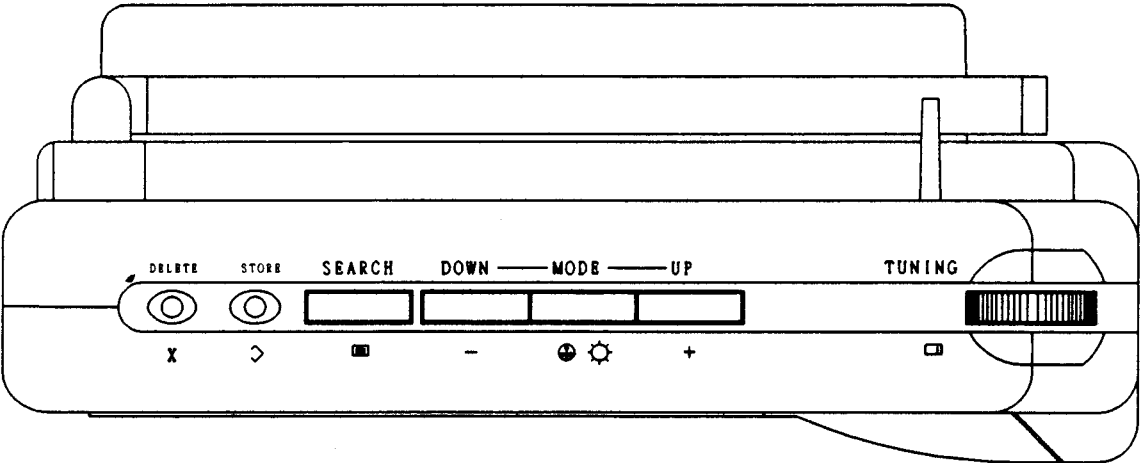
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Remark: For the Service Code numbers of items indicated in the exploded view with A,J,LP,SP,PL,R and S see Chassis Manual LCD3-ECO

# Exploded view



# Controls - In/outs



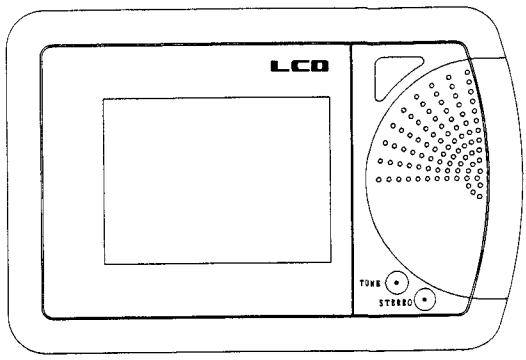






3" LCD CTV/Radio CHASSIS LCD3-ECO

Service  
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# Service Manual

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
## 1. TV part

Mains voltage	: 220V $\pm$ 10% (via an adapter)
	: (240V for /05)
Supply voltage	: 9V (6x 1.5V batteries)
Power consumption	: 8 Watt at 220V <sub>AC</sub>
	: 3.5Watt at 9V <sub>DC</sub>
Antenna input impedance	: 75 $\Omega$ -coax (not for -/02/08) or via rod antenna.
Screen	: LCD screen (3" picture diagonal)
Number of preselections	: 69

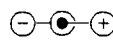







## 2. Radio part




FM frequency range	: 88 - 108 MHz
AM frequency range	: 531 - 1602 kHz
Output	: 150mWatt

## 3. Control functions:

	: PAL BG (-/02/08/10)
	: PAL I (-/05)
<b>Power</b>	: Radio/TV/Off mode (slide switch)
<b>Band</b>	: AM/FM mode (slide switch)
<b>X</b>	: Delete (to delete a programme number)
	: Store (to store a programme number)
	: Search (to search for a station)
<b>MODE</b>	:  Brightness  Saturation, Channel +,-
	: Knob for Radio tuning
<b>VOL</b>	: Knob for sound volume

## 4. Connection facilities:

 3,5mm	: 9V (via a mains adapter)
 3.5mm	: External antenna (75 $\Omega$ ), not for -/02/08
 3,5mm	: Audio  500mV $\pm$ 150mV for 100mW
 3,5mm	: Video  1V $\pm$ 350mV <sub>pp</sub>
 3,5mm 	: 32 $\Omega$ (5mWatt)

1. Safety regulations require that the set should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol .
  2. **ESD**   
All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.
  3. When repairing a set, always connect it to the mains voltage via an isolating transformer.
  4. Proceed with care when measuring the fluorescent lamp drive circuit.
  5. Never replace modules or other components while the set is switched on.
  6. When making settings, use plastic rather than metal tools.  
This will prevent any short circuits and the danger of a circuit becoming unstable.
1. The DC voltages and oscillograms should be measured relative to the tuner earth ().
  2. The DC voltages were measured under different conditions. Please refer to the remarks on the diagrams.
  3. The semiconductors indicated on the circuit diagram and in the parts lists are per position fully interchangeable with the semiconductors in the set, regardless of the type designation on those semiconductors.

**1. Remove the front.**

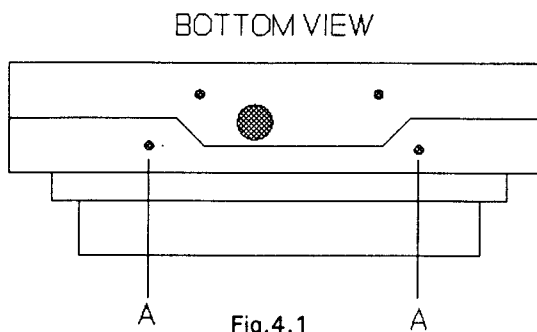
- Remove the 2 screws at the rear cover side.
- Remove 2 screws at the bottom side (see A in Fig 4.1.).
- The front ( LCD screen included ) can "click" out now from the rear cover. Start at bottom side.

**2. Remove the PCB unit.**

- Remove the radio tuning knob.
- Remove the battery connection.
- Remove the screw fixing the connection plate between PCB unit and telescopic aerial connection.
- The complete PCB unit can now be removed out of the rear cover together with operating knob strip. Start lifting at tuning knob side.

**3. Service position of PCB,s.**

- To get a service position we need 2 extension cables for interconnection of Main and Radio PCB.
- Cable 1 (10p male-10p female)
- Cable 2 ( 9p male- 9p female)
- Both cables are delivered as set.
- Service code number of set is 4822 310 31969



Abbreviations and Explanations

CHASSIS LCD3-ECO

4.2

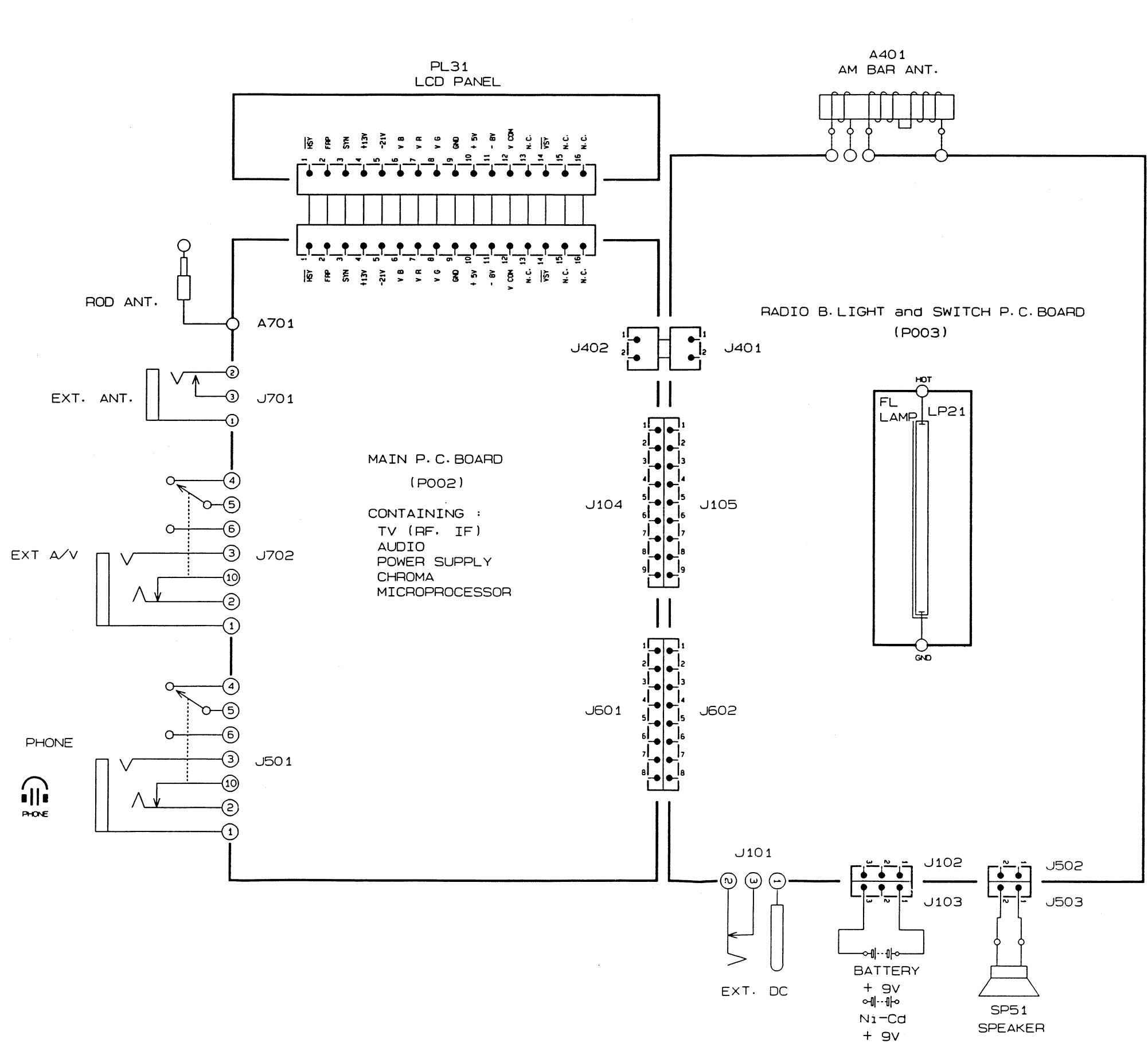
4.3

CHASSIS LCD3-ECO

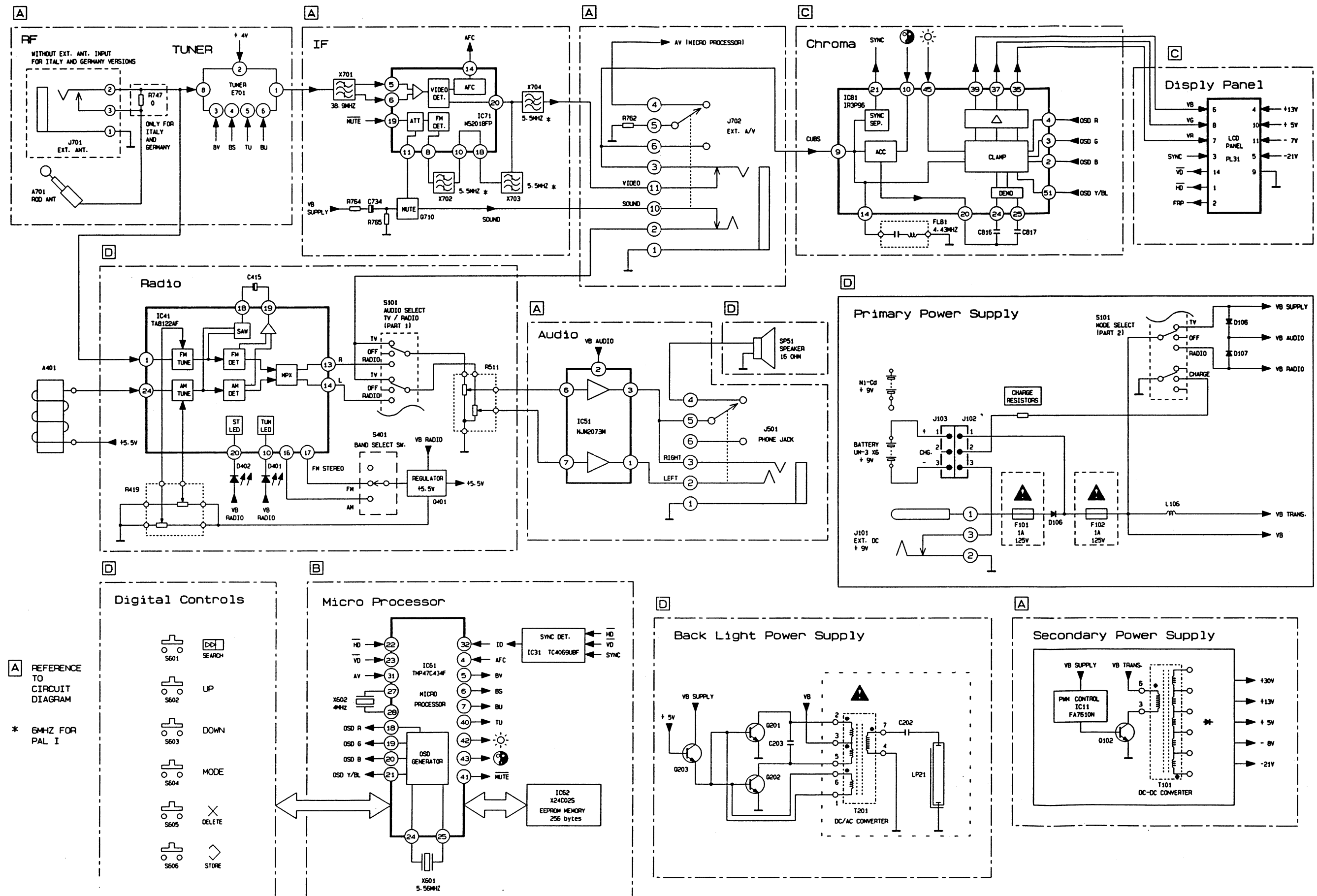
Abbreviations and Explanations

AC : ALTERNATING CURRENT  
ACC : AUTOMATIC COLOUR CONTROL  
ADJ. : ADJUSTMENT  
AF : AUDIO FREQUENCY  
AFC : AUTOMATIC FREQUENCY CONTROL  
AGC : AUTOMATIC GAIN CONTROL  
AM : AMPLITUDE MODULATION  
ANT. IN : ANTENNA INPUT  
APC : AUTOMATIC PHASE CONTROL  
ATT : ATTENUATION  
AV : AUDIO VISUAL  
A/V : AUDIO AND VIDEO  
A/D : ANALOGUE TO DIGITAL CONVERSION  
A0 : ADDRESS INPUT 0  
A1 : ADDRESS INPUT 1  
A2 : ADDRESS INPUT 2  
B : BLUE SIGNAL  
BGP : BURST GATE PULSE  
BM : POWER SUPPLY  
BPF : BAND PASS FILTER  
BS : SHORT IN UHF AND VHF HIGH BAND  
BU : 4V IN UHF BAND  
BV : 4V IN VHF BAND  
B. LIGHT : BACK LIGHT  
CE : CHIP ENABLE  
CHG : CHARGE  
COL. : COLOUR  
CONT. : CONTROL  
CPU : CENTRAL PROCESSING UNIT  
CS : CAPACITOR, SHORTAGE  
C.G. : CHARACTER GENERATOR  
D/A : DIGITAL TO ANALOGUE CONVERTOR  
DC : DIRECT CURRENT  
DECOD. : DECODER  
DET : DETECTOR  
D.L. : DELAY LINE  
EXT.ANT. : EXTERNAL ANTENNA  
FM : FREQUENCY MODULATION  
FRP : FRAME PULSE  
F/F : FLIP-FLAP  
F.B. : FEED BACK  
F.F : FREQUENCY DIVIDER  
G : GREEN SIGNAL  
GEN : GENERATOR  
GND : GROUND  
H : HORIZONTAL SYNCHRONIZATION SIGNAL  
HD : HORIZONTAL SYNCHRONIZATION SIGNAL  
HSY : HORIZONTAL SYNCHRONIZATION SIGNAL  
IF : INTERMEDIATE FREQUENCY  
INT/EXT : INTERNAL / EXTERNAL  
INV. : INVERTER  
LCD : LIQUID CRYSTAL DISPLAY  
LED : LIGHT EMITTED DIODE  
L.C.D. : LIQUID CRYSTAL DISPLAY  
NC : NO CONNECTION  
N.C. : NO CONNECTION  
NT/PM : HIGH IN PAL-M, LOW IN NTSC  
OSC : OSCILLATOR  
OSC1 : OSCILLATOR INPUT  
OSC2 : OSCILLATOR OUTPUT  
OSD : ON SCREEN DISPLAY  
OUT : OUTPUT  
PAL : PHASE ALTERNATION BY LINE  
PRE AMP : PRE-AMPLIFIER  
PWM : PULSE WIDTH MODULATION  
R : RED SIGNAL

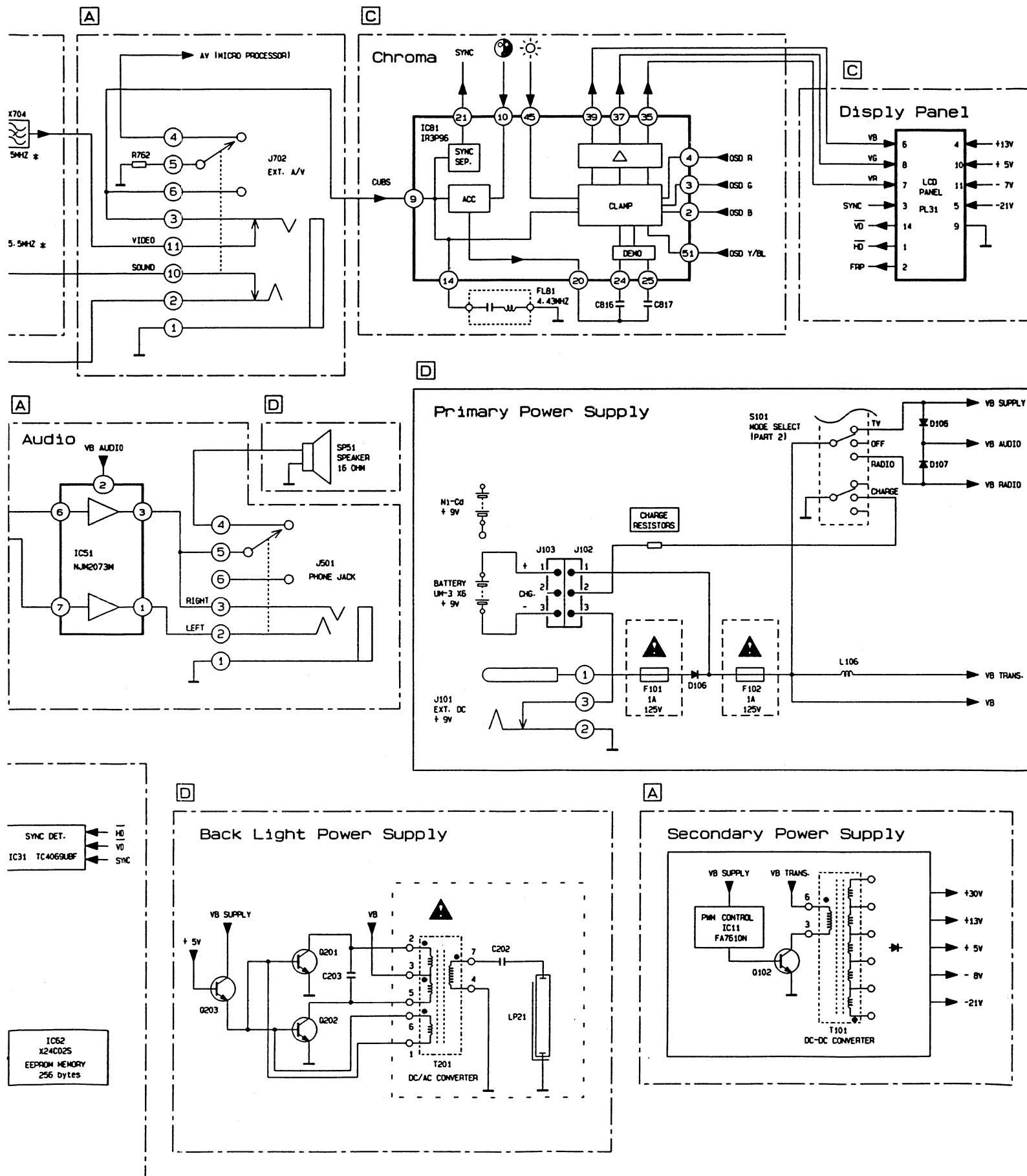
RAM : RANDOM ACCESS MEMORY  
ROD ANT : ROD ANTENNA  
ROM : READ ONLY MEMORY  
RF AGC : RADIO FREQUENCY AUTOMATIC  
GAIN CONTROL  
RST : RESET  
SAW : SURFACE ACOUSTIC WAVE  
SCL : SERIAL CLOCK  
SDA : SERIAL DATA  
SEP : SEPARATOR  
ST : STEREO  
SW. : SWITCH OR SWITCHING  
SWP : SWEEP  
SYN : SYNCHRONIZATION SIGNAL  
SYNC : SYNCHRONIZATION SIGNAL  
TR. : TRANSISTOR  
TU : TUNING VOLTAGE  
TV : TELEVISION  
TUN : TUNING  
TUNE : TUNING VOLTAGE  
UHF : ULTRA HIGH FREQUENCY  
U.V.L.O : UNDER VOLTAGE LOCK OUT  
VB : +B POWER SUPPLY  
VCC : SUPPLY VOLTAGE  
VCO : VOLTAGE CONTROLLED OSCILLATOR  
VDD : SUPPLY VOLTAGE  
VD : VERTICAL SYNC SIGNAL  
VEE : SUPPLY VOLTAGE (NEGATIVE)  
VHF : VERY HIGH FREQUENCY  
VHF H/L : VHF HIGH / LOW  
VREF : REFERENCE VOLTAGE  
VSS : 0V (GROUND)  
VSY : VERTICAL SYNCHRONIZATION SIGNAL  
V COM : COMMON VOLTAGE  
V IN : INPUT VOLTAGE  
V REF : REFERENCE VOLTAGE  
V R : RED SIGNAL  
V G : GREEN SIGNAL  
V B : BLUE SIGNAL  
Y : Y SIGNAL, LUMINANCE  
Y/BL : OSD Y SIGNAL, LUMINANCE  
X IN : CRYSTAL OSCILLATOR INPUT  
X OUT : CRYSTAL OSCILLATOR OUTPUT



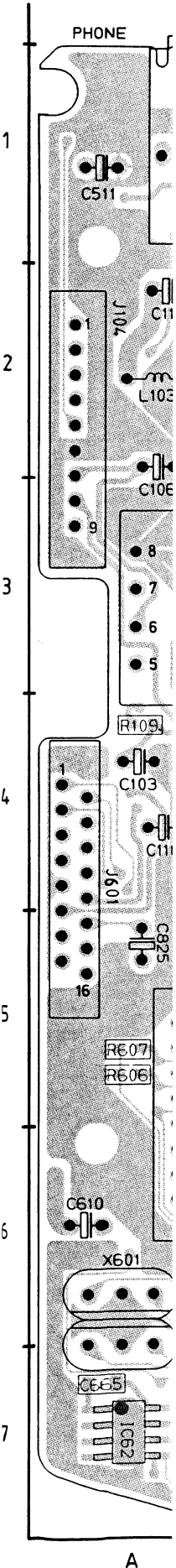
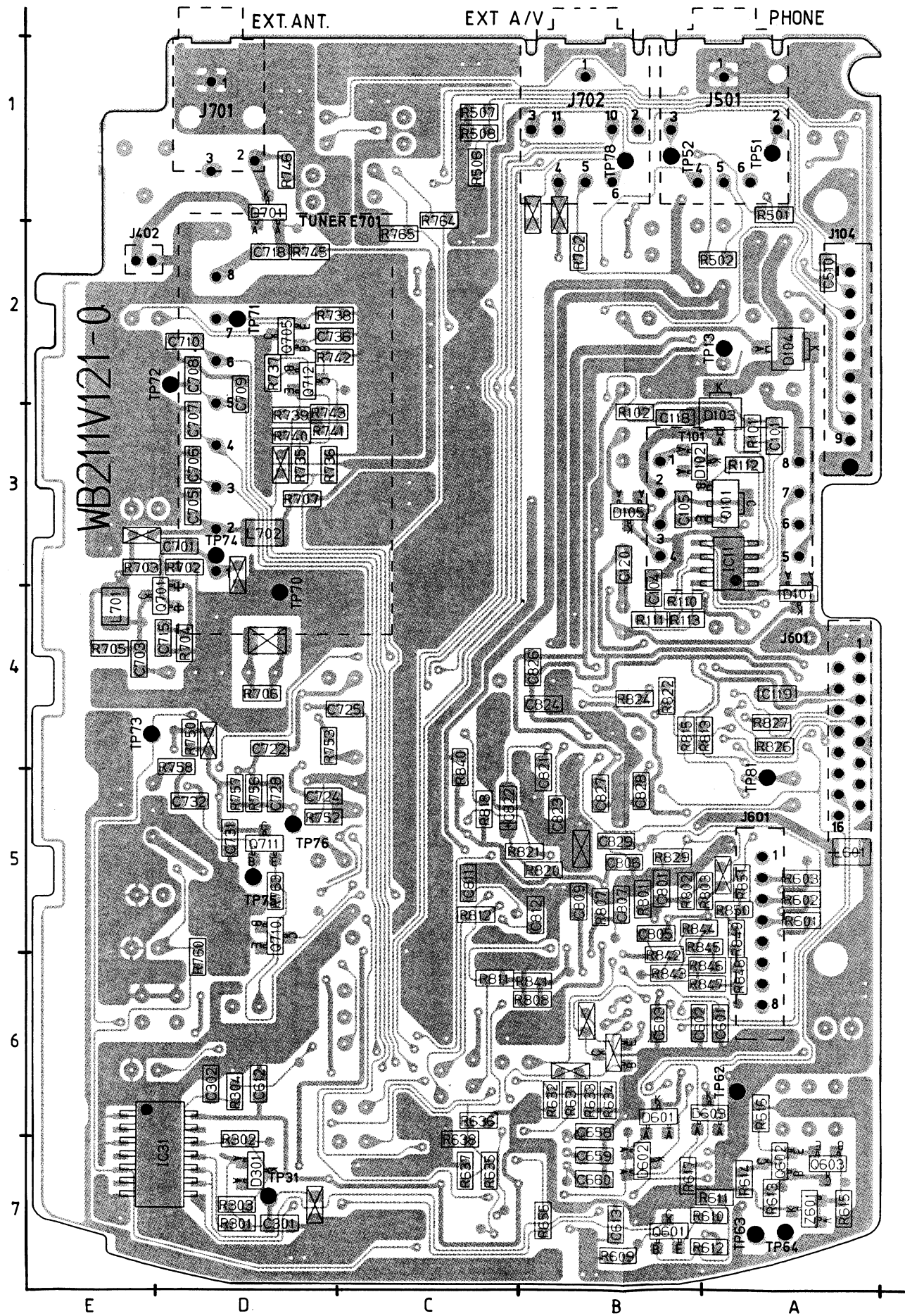




## Block Schaltbild Blokschema

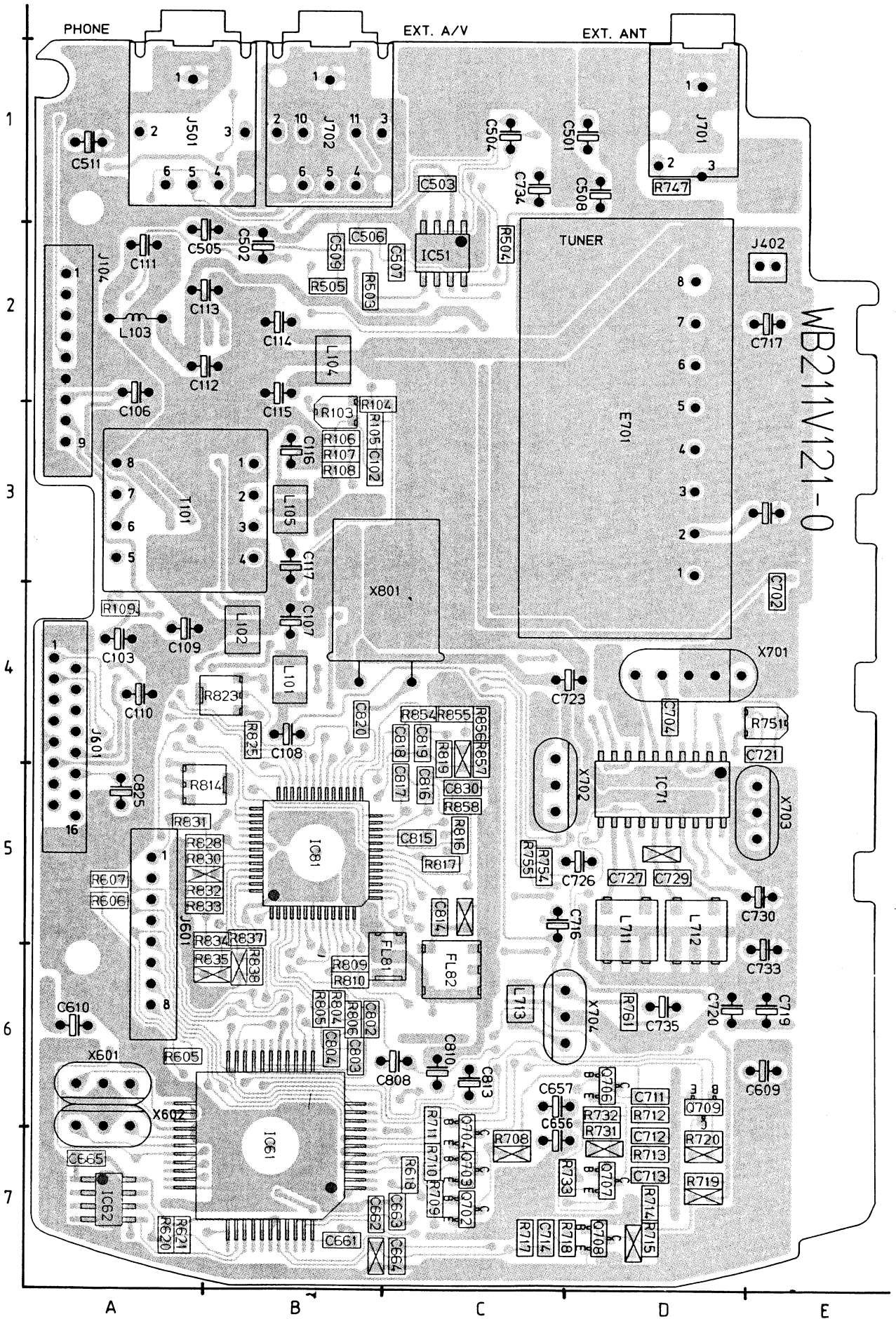
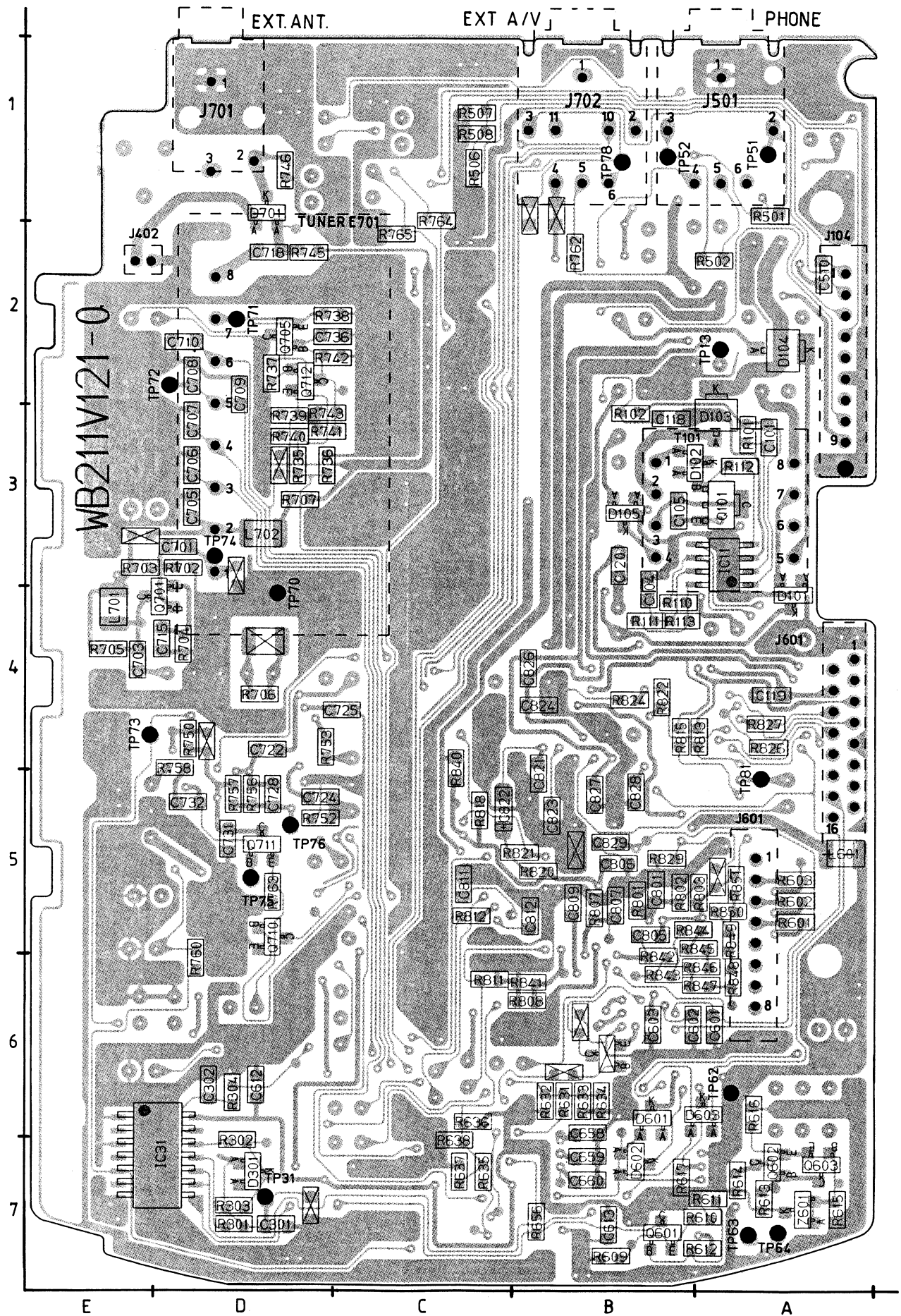


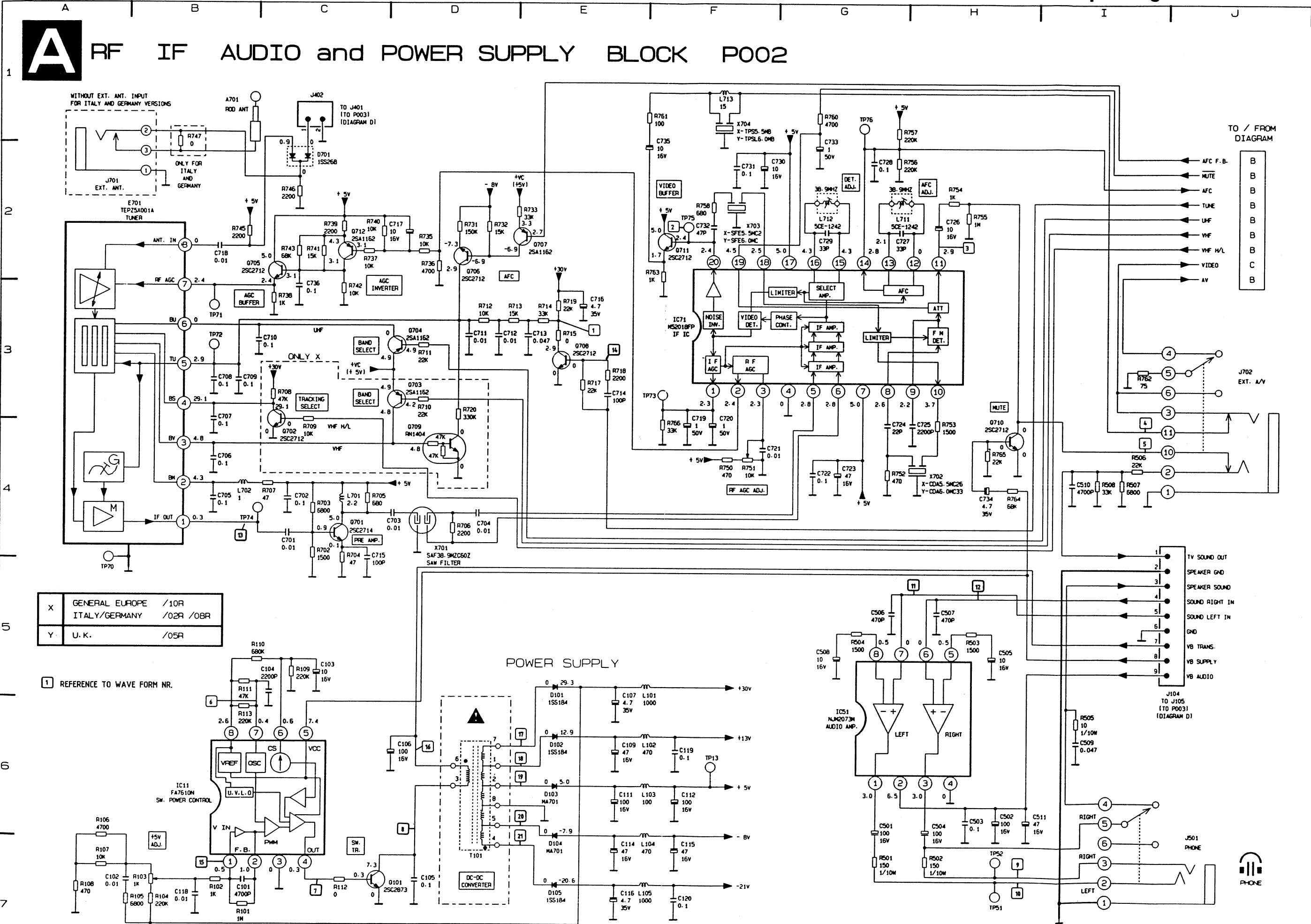
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C105 B3	C806 B5	R106 B3	R757 D5	
C106 A2	C807 B5	R107 B3	R758 D5	
C107 B4	C808 B6	R108 B3	R760 D6	
C108 B4	C809 B5	R109 A4	R761 D6	
C109 A4	C810 C6	R110 B4	R762 B2	
C110 A4	C811 C5	R111 B4	R763 D5	
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C116 B3	C817 C5	R304 D6	R804 B6	
C117 B4	C818 C4	R601 A1	R805 B6	
C118 B3	C819 C4	R502 A2	R806 B6	
C119 A4	C820 B4	R503 B2	R807 B5	
C120 B3	C821 B5	R504 C2	R808 B6	
C301 D7	C822 C5	R505 B2	R809 B6	
C302 D6	C823 B5	R506 C1	R810 B6	
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C502 B2	C825 A5	R508 C1	R812 C5	
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C504 C1	C827 B5	R602 A5	R814 B5	
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C507 C2	C830 C5	R606 A5	R817 C5	
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C510 A2	D103 A3	R610 B7	R820 B5	
C511 A1	D104 A2	R611 A7	R821 C5	
C601 A6	D105 B3	R612 B7	R822 B4	
C602 B6	D106 E6	R613 A7	R823 B4	
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C609 E6	D601 B7	R615 A7	R825 B4	
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C662 B7	IC51 C1	R635 C7	R835 B6	
C663 C7	IC61 B7	R636 C7	R837 B6	
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C716 C6	L701 E4	R717 C7	R858 C5	
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C718 D2	L711 D5	R719 D7	TP13 A2	
C719 E6	L712 D5	R720 D7	TP31 D7	
C720 D6	L713 C6	R731 D7	TP61 A1	
C721 E4	Q101 A3	R732 D6	TP62 B1	
C722 D4	Q601 B7	R733 D7	TP62 A6	
C723 C4	Q602 A7	R735 D3	TP63 A7	
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C726 D5	Q702 C7	R738 D2	TP71 D2	
C727 D5	Q703 C7	R739 D3	TP72 D2	
C728 D6	Q704 C7	R740 D3	TP73 E4	
C729 D5	Q705 D2	R741 D3	TP74 D3	
C730 E5	Q706 D6	R742 D2	TP75 D5	
C731 D5	Q707 D7	R743 D3	TP76 D5	
C732 D5	Q708 D7	R745 D2	TP78 B1	
C733 E6	Q709 D6	R746 D1	TP81 A5	
C734 C1	Q710 D6	R747 D1	X601 A6	
C735 D6	Q711 D5	R750 D4	X602 A7	
C736 D2	Q712 D2	R751 E4	X701 D4	
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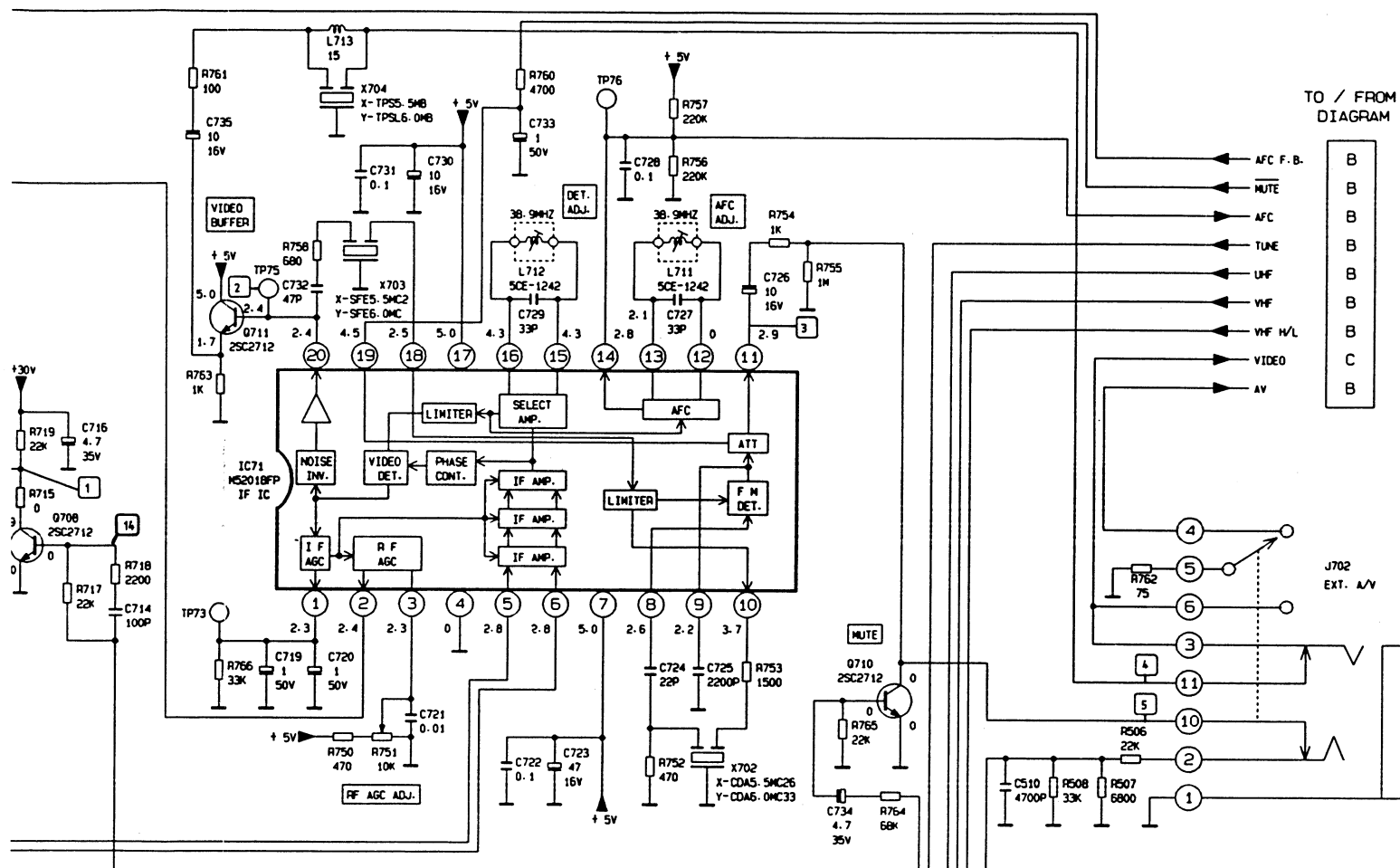
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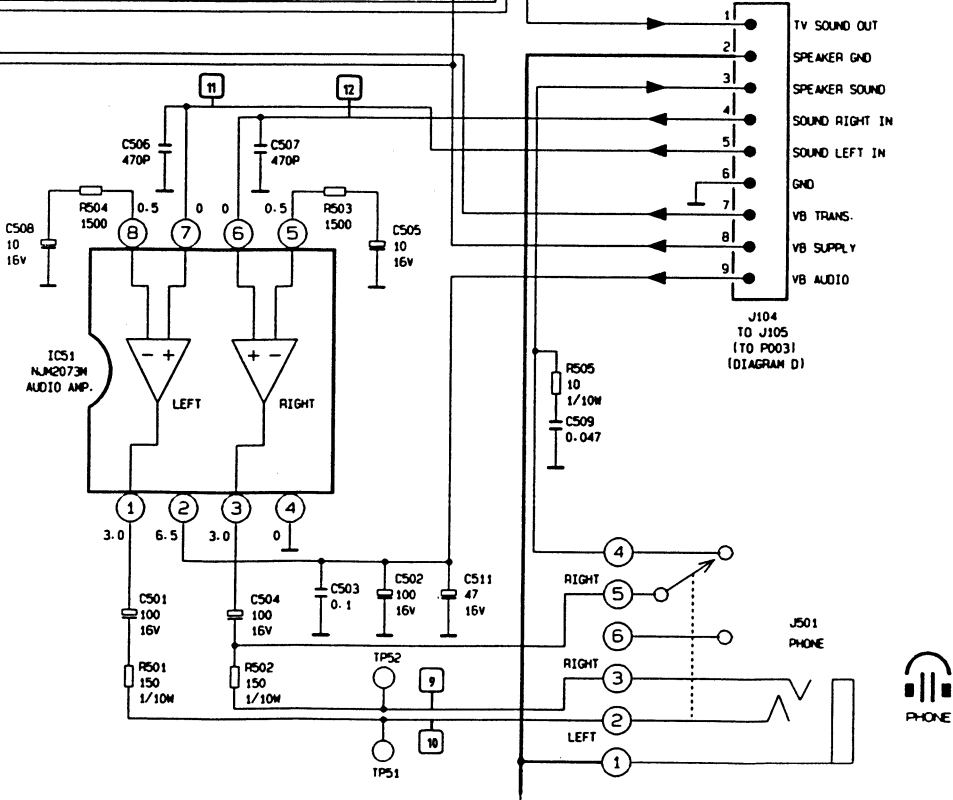
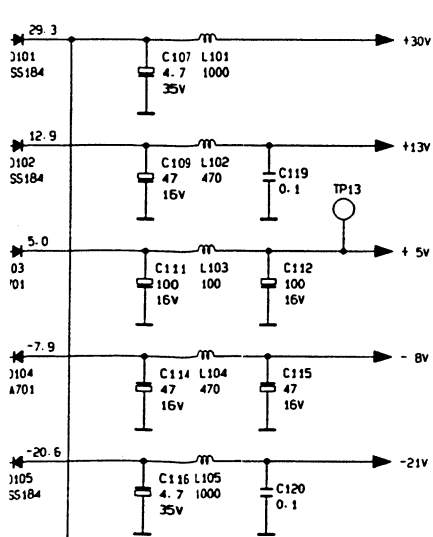


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- C109 E8
- C110 E8
- C111 E8
- C112 F8
- C114 E7
- C115 F7
- C116 E7
- C117 B7
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- C119 F8
- C120 F7
- C501 G7
- C502 H7
- C503 H7
- C504 H7
- C505 H6
- C506 G6
- C507 H5
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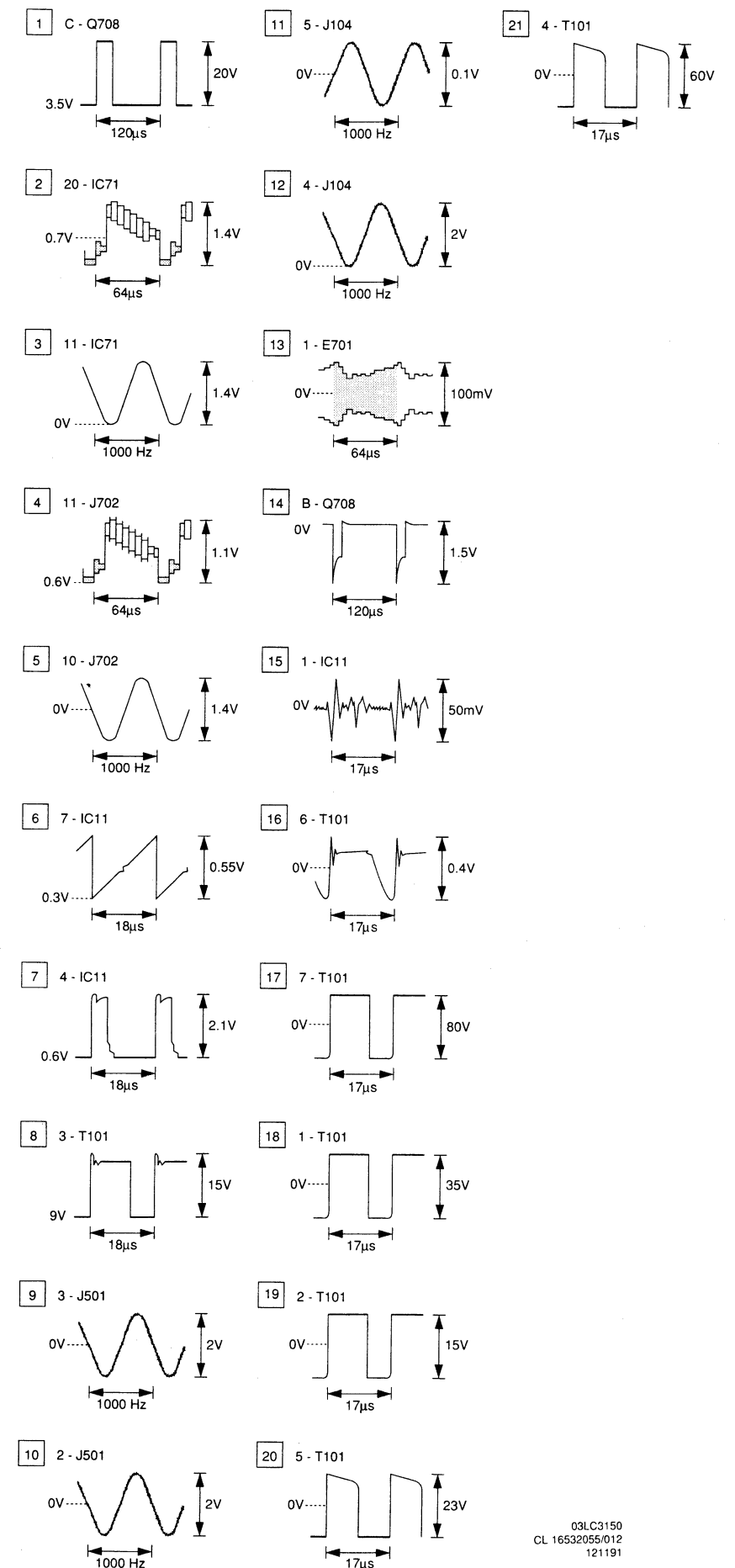


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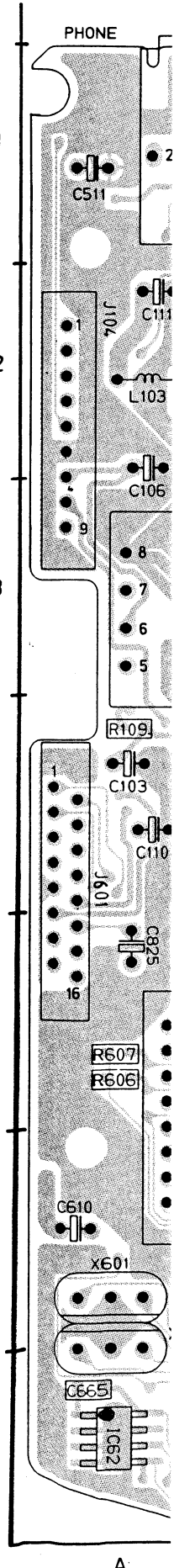
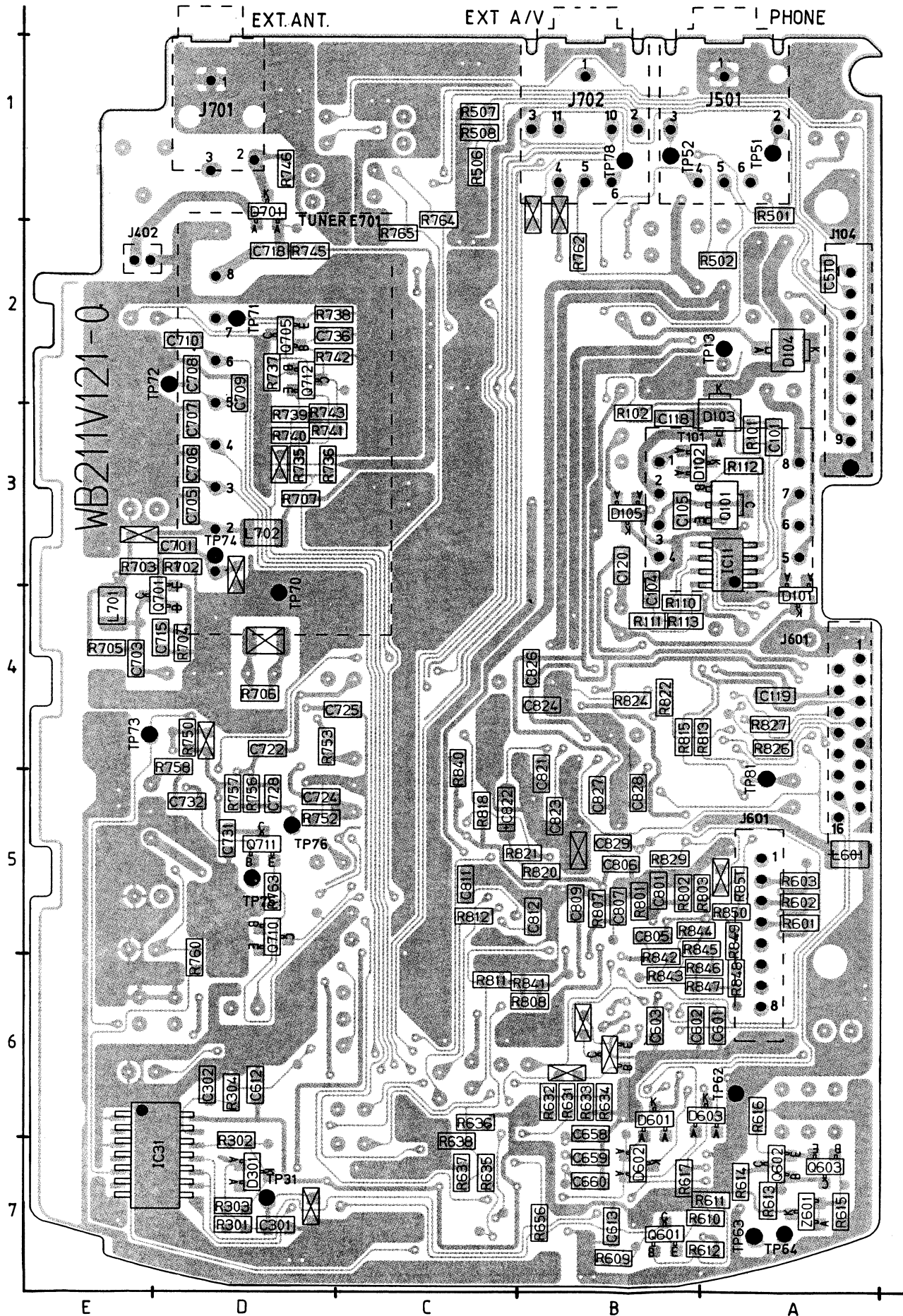
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C104 C8	Q702 C4	TP72 B3
C106 D7	Q703 D3	TP73 F3
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C107 E6	Q705 C3	TP75 F2
C109 E6	Q706 D2	TP76 G2
C111 E6	Q707 E2	X701 D4
C112 F6	Q708 E3	X702 H4
C114 E7	Q709 D4	X703 F2
C116 F7	Q710 H4	X704 F2
C118 E7	Q711 F2	
C118 B7	Q712 C2	
C119 F6	R101 B7	
C120 F7	R102 B7	
C601 G7	R103 B7	
C602 H7	R104 B7	
C603 H7	R105 B7	
C604 H7	R106 A7	
C605 H6	R107 A7	
C606 G6	R108 A7	
C607 H6	R109 C6	
C608 G6	R110 B6	
C609 I8	R111 B6	
C610 I4	R112 C7	
C611 H7	R113 B6	
C701 C4	R601 G7	
C702 C4	R602 H7	
C703 D4	R603 H6	
C704 D4	R604 G6	
C705 B4	R605 I8	
C706 B4	R606 I4	
C707 B4	R607 I4	
C708 B3	R608 I4	
C709 B3	R702 C6	
C710 C3	R703 C4	
C711 D3	R704 C6	
C712 D3	R705 C4	
C713 E3	R706 D4	
C714 E3	R707 C4	
C715 C6	R708 C3	
C716 E3	R709 C4	
C717 D2	R710 D3	
C718 B2	R711 D3	
C719 F4	R712 D3	
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C721 F4	R714 E3	
C722 G4	R715 E3	
C723 G4	R717 E3	
C724 G4	R718 E3	
C726 H4	R719 E3	
C726 H2	R720 D4	
C727 G2	R731 D2	
C728 G2	R732 D2	
C729 G2	R733 E2	
C730 F2	R735 D2	
C731 F2	R736 D3	
C732 F2	R737 C2	
C733 G2	R738 C3	
C734 H4	R739 C2	
C735 F2	R740 C2	
C736 C3	R741 C2	
D101 E6	R742 C3	
D102 E6	R743 C2	
D103 E6	R745 B2	
D104 E7	R746 C2	
D106 E7	R747 B2	
D701 C2	R760 F4	
E701 B4	R761 F4	
IC11 B7	R762 G4	
IC71 F3	R763 H4	
IC61 G6	R764 H2	
J104 J6	R765 H2	
J402 C1	R766 G2	
J601 I7	R767 G2	
J701 B2	R768 F2	
J702 J4	R760 G1	
L101 E6	R761 F1	
L102 E6	R762 I3	
L103 E6	R763 F3	
L104 E7	R764 H4	
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### WAVE FORMS FOR DIAGRAM **A**



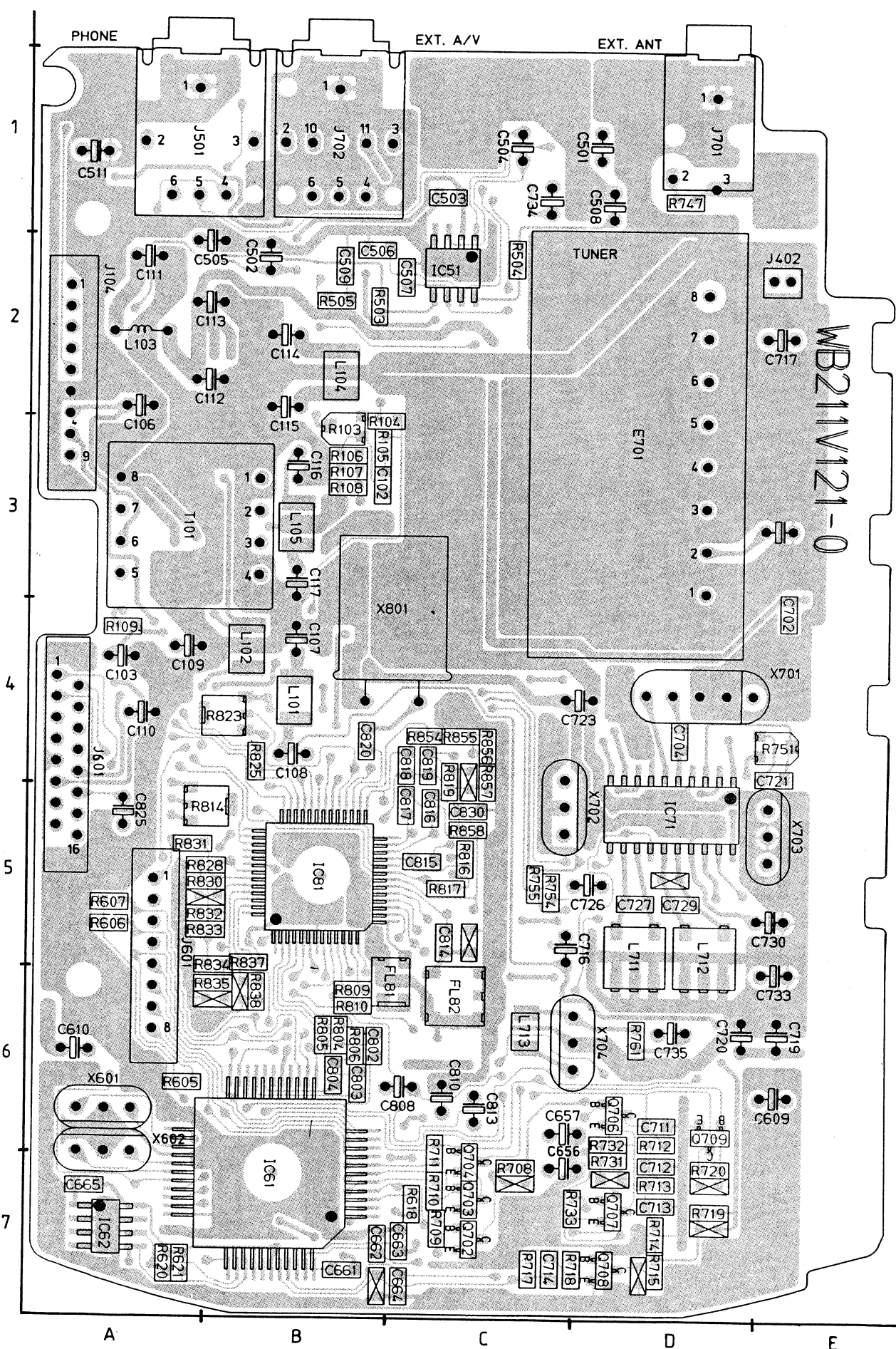
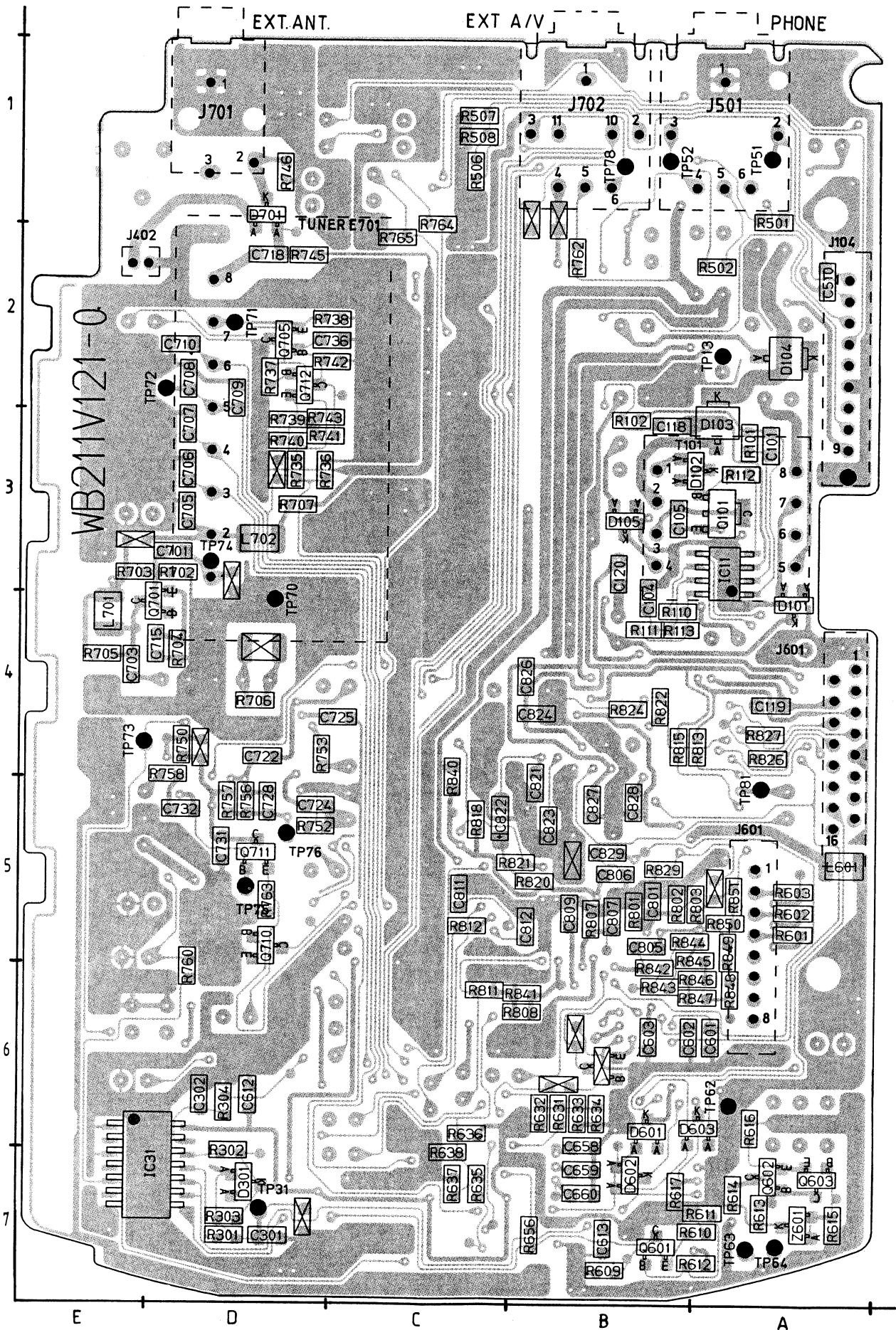


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C104 B4	C805 B6	R105 B3	R756 D5	Z801 A7
C105 B3	C806 B5	R106 B3	R757 D5	
C106 A2	C807 B5	R107 B3	R758 D5	
C107 B4	C808 B6	R108 B3	R760 D6	
C108 B4	C809 B6	R109 A4	R761 D6	
C109 A4	C810 C6	R110 B4	R762 B2	
C110 A4	C811 C5	R111 B4	R763 D5	
C111 A2	C812 B5	R112 A3	R764 C2	
C112 A2	C813 C6	R113 B4	R765 C2	
C113 A2	C814 C5	R301 D7	R801 B5	
C114 B2	C815 C5	R302 D7	R802 B5	
C115 B2	C816 C5	R303 D7	R803 B5	
C116 B3	C817 C5	R304 D6	R804 B6	
C117 B4	C818 C4	R501 A1	R805 B6	
C118 B3	C819 C4	R502 A2	R806 B6	
C119 A4	C820 B4	R503 B2	R807 B5	
C120 B3	C821 B5	R504 C2	R808 B6	
C301 D7	C822 C5	R505 B2	R809 B6	
C302 D6	C823 B5	R506 C1	R810 B6	
C501 D1	C824 B4	R507 C1	R811 C6	
C502 B2	C825 A5	R508 C1	R812 C5	
C503 C1	C826 B4	R601 A5	R813 B4	
C504 C1	C827 B5	R602 A5	R814 B5	
C505 A2	C828 B5	R603 A5	R815 B4	
C506 B2	C829 B5	R605 A6	R816 C5	
C507 C2	C830 C5	R606 A5	R817 C5	
C508 D1	D101 A4	R607 A5	R818 C5	
C509 B2	D102 B3	R609 B7	R819 C5	
C510 A2	D103 A3	R610 B7	R820 B5	
C511 A1	D104 A2	R611 A7	R821 C5	
C601 A6	D105 B3	R612 B7	R822 B4	
C602 B6	D106 E6	R613 A7	R823 B4	
C603 B6	D301 D7	R614 A7	R824 B4	
C609 E6	D601 B7	R615 A7	R825 B4	
C610 A6	D602 B7	R616 A6	R826 A4	
C612 D6	D603 B6	R617 B7	R827 A4	
C613 B7	D701 D1	R618 C7	R828 B5	
C656 C7	E701 D3	R620 A7	R829 B5	
C657 C6	F101 E6	R621 A7	R830 B5	
C658 B7	FL81 C6	R631 B6	R831 A5	
C659 B7	FL82 C6	R632 B6	R832 B5	
C660 B7	IC11 A3	R633 B6	R833 B5	
C661 B7	IC31 E7	R634 B6	R834 B6	
C662 B7	IC51 C1	R635 C7	R835 B6	
C663 C7	IC61 B7	R636 C7	R837 B6	
C664 C7	IC62 A7	R637 C7	R838 B6	
C665 A7	IC71 D4	R638 C7	R840 C5	
C701 D3	IC81 B5	R656 B7	R841 B6	
C702 E4	J102 E7	R702 D3	R842 B6	
C703 E4	J104 A2	R703 E3	R843 B6	
C704 D4	J402 E2	R704 D4	R844 B5	
C705 D3	J501 A1	R705 E4	R845 B6	
C706 D3	J601 A5	R706 D4	R846 B6	
C707 D3	J701 D1	R707 D3	R847 B6	
C708 D2	J702 B1	R708 C7	R848 A6	
C709 D2	J801 A4	R709 C7	R849 A6	
C710 D2	L101 B4	R710 C7	R850 A5	
C711 D6	L102 B4	R711 C7	R851 A5	
C712 D7	L103 A2	R712 D6	R854 C4	
C713 D7	L104 B2	R713 D7	R855 C4	
C714 C7	L105 B3	R714 D7	R856 C4	
C715 E4	L801 A5	R715 D7	R857 C5	
C716 C6	L701 E4	R717 C7	R858 C5	
C717 E2	L702 D3	R718 D7	T101 B3	
C718 D2	L711 D5	R719 D7	TP13 A2	
C718 E6	L712 D5	R720 D7	TP31 D7	
C720 D6	L713 C6	R731 D7	TP51 A1	
C721 E4	Q101 A3	R732 D6	TP52 B1	
C722 D4	Q601 B7	R733 D7	TP62 A6	
C723 C4	Q602 A7	R735 D3	TP63 A7	
C724 D6	Q603 A7	R736 D3	TP64 A7	
C725 D4	Q701 E4	R737 D2	TP70 D4	
C726 D6	Q702 C7	R738 D2	TP71 D2	
C727 D5	Q703 C7	R739 D3	TP72 D2	
C728 D6	Q704 C7	R740 D3	TP73 E4	
C728 D6	Q705 D2	R741 D3	TP74 D3	
C730 E5	Q706 D6	R742 D2	TP75 D5	
C731 D5	Q707 D7	R743 D3	TP76 D5	
C732 D6	Q708 D7	R745 D2	TP78 B1	
C733 E6	Q709 D6	R746 D1	TP81 A5	
C734 C1	Q710 D6	R747 D1	X601 A6	
C735 D6	Q711 D5	R750 D4	X602 A7	
C736 D2	Q712 D2	R751 E4	X701 D4	
C801 B5	R101 A3	R752 D5	X702 C5	

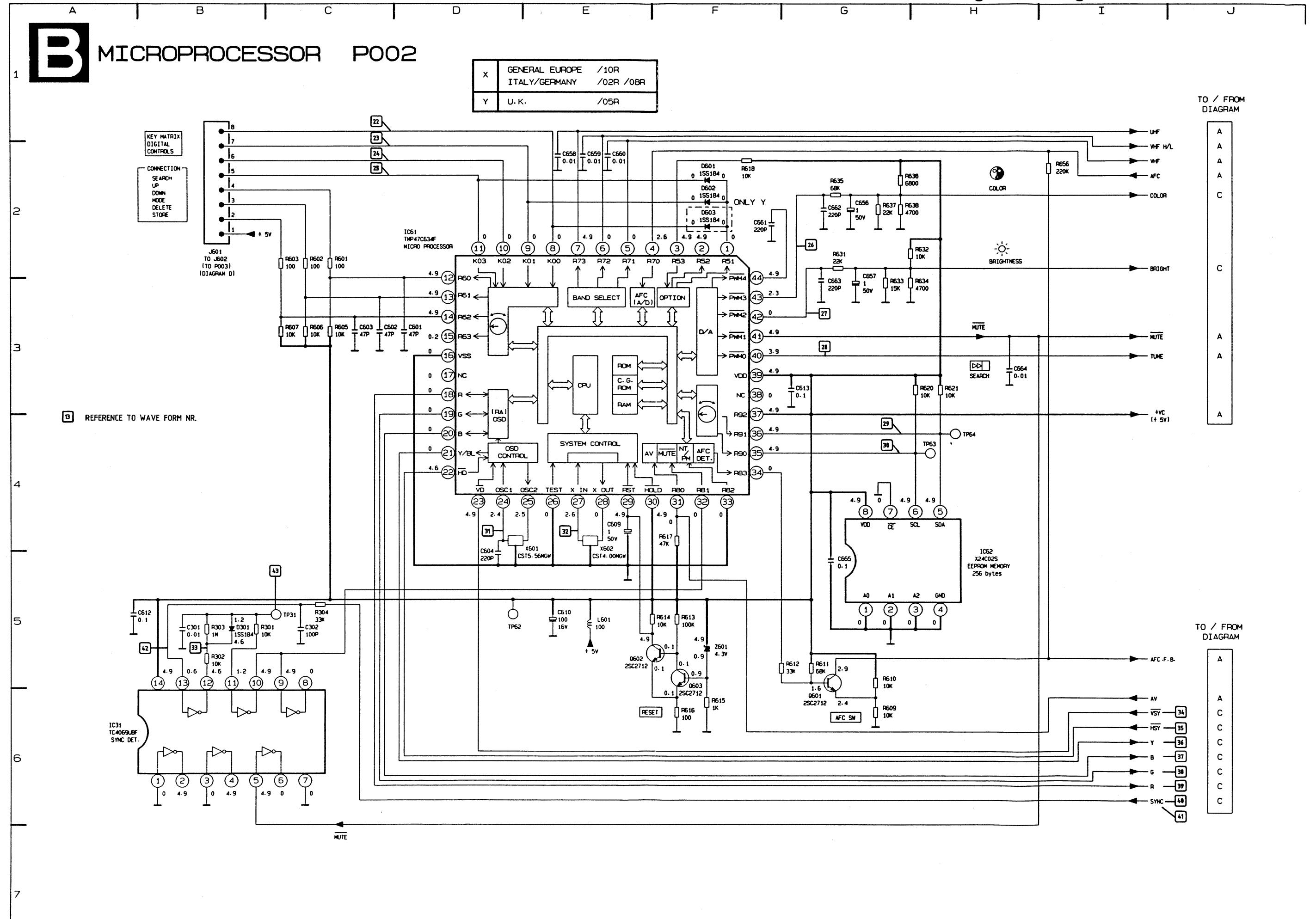




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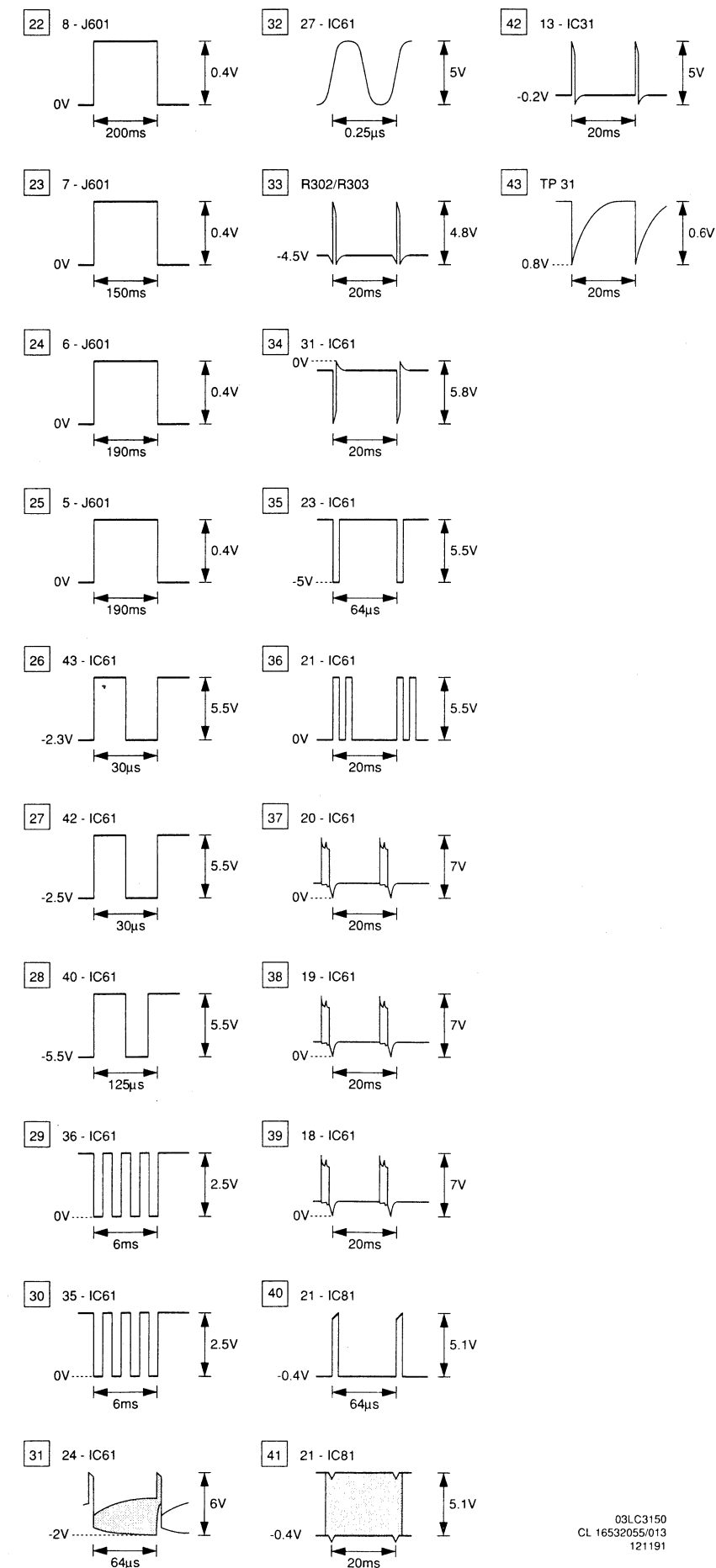




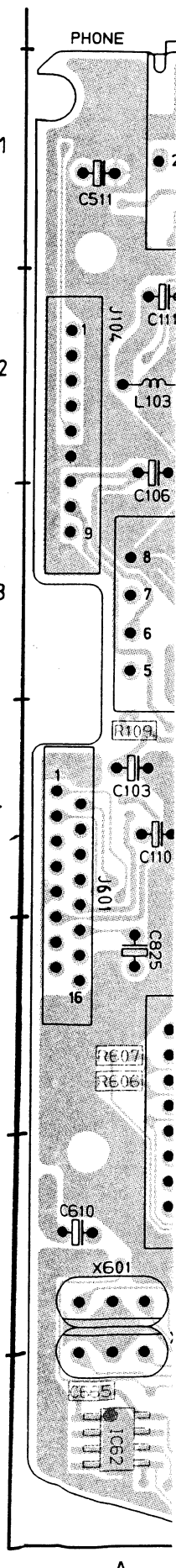
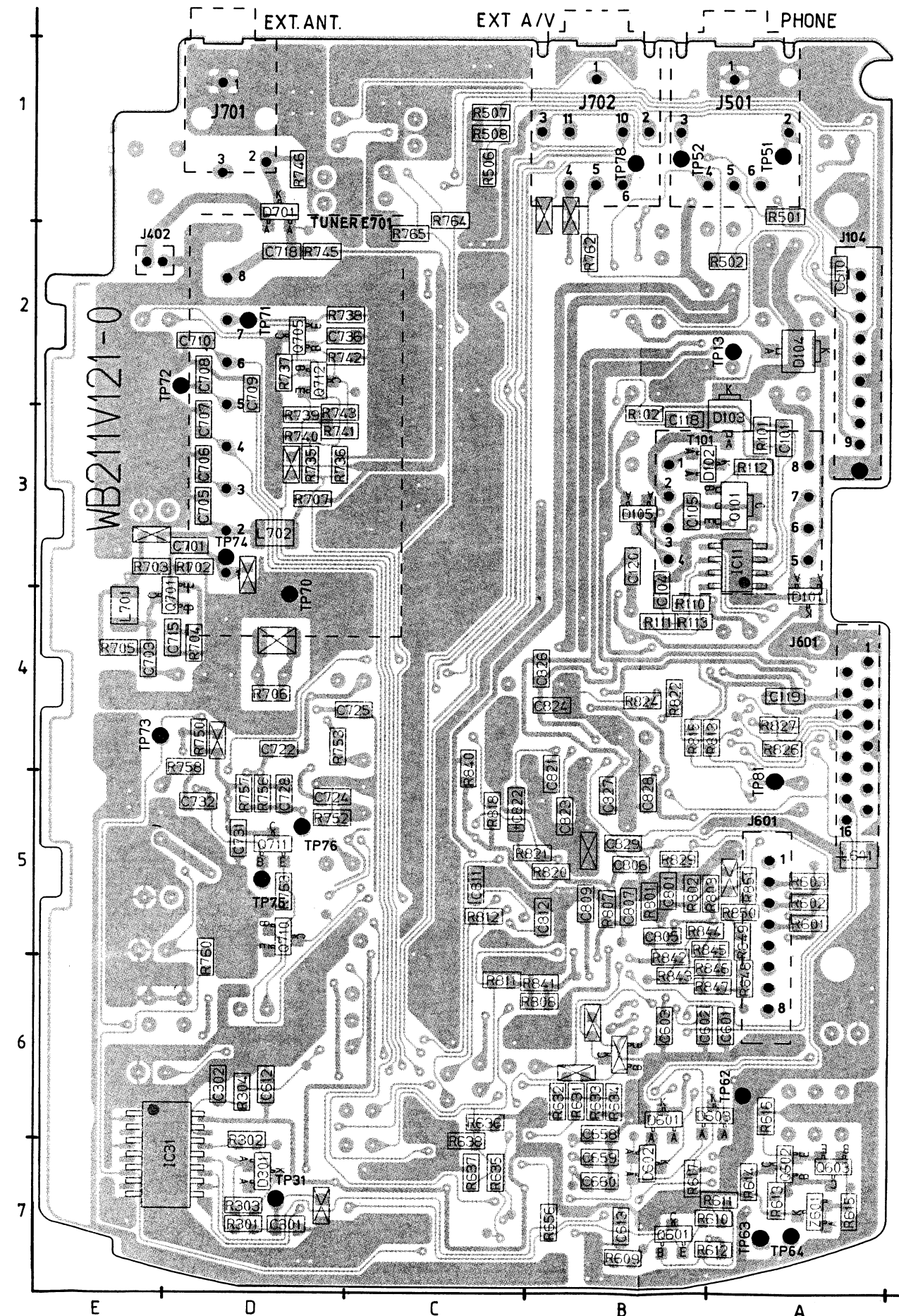


WAVE FORMS FOR DIAGRAM **B**

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C869 E2  
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D301 B5  
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IC62 G5  
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Q803 F8  
Q801 G6  
Q802 F5  
R301 B5  
R302 B5  
R303 B5  
R304 C5  
R601 C3  
R602 C3  
R603 C3  
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R608 G6  
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R632 H2  
R633 G3  
R634 H3  
R636 G2  
R636 G2  
R637 G2  
R638 G2  
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TP64 H4  
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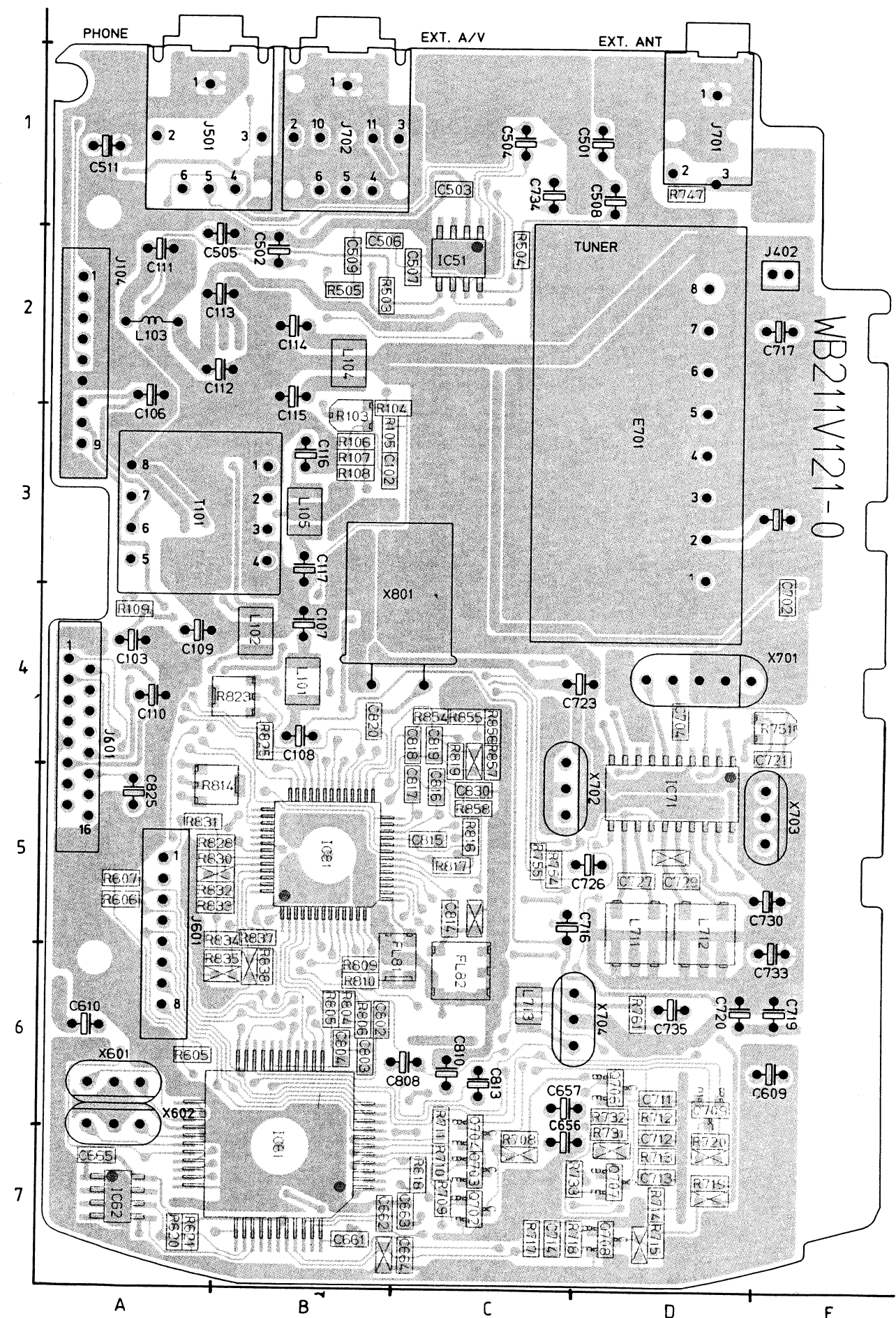
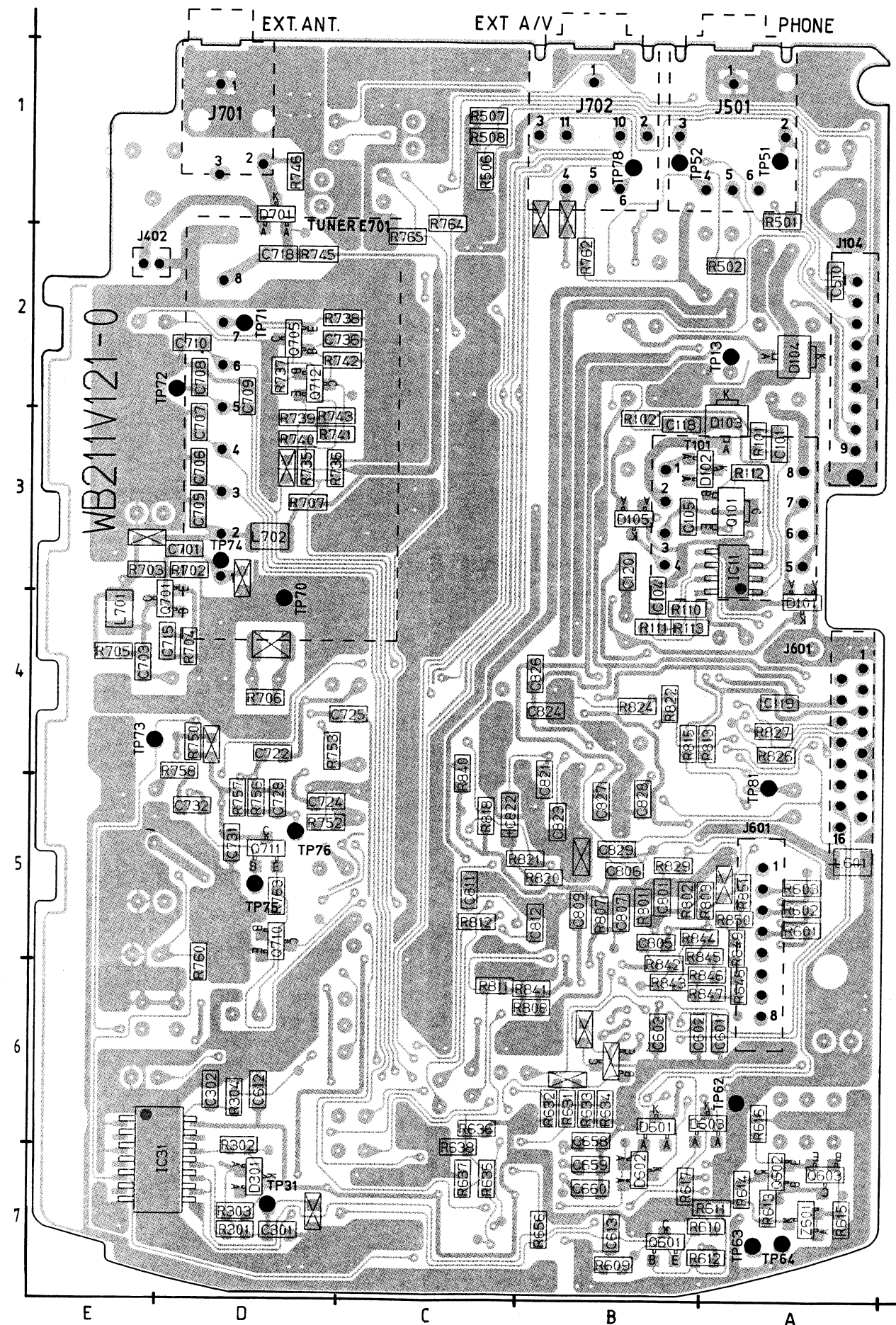


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C103 A4	C804 B8	R104 B3	R765 C6	X801 C4
C104 B4	C805 B5	R105 B3	R766 D5	Z801 A7
C106 B3	C806 B5	R106 B3	R767 D6	
C106 A2	C807 B5	R107 B3	R768 D5	
C107 B4	C808 B6	R108 B3	R769 D6	
C108 B4	C809 B5	R109 A4	R761 D8	
C109 A4	C810 C8	R110 B4	R762 B2	
C110 A4	C811 C5	R111 B4	R763 D5	
C111 A2	C812 B5	R112 A3	R764 C2	
C112 A2	C813 C8	R113 B4	R765 C2	
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C114 B2	C815 C5	R302 D7	R802 B5	
C116 B2	C816 C5	R303 D7	R803 B5	
C116 B3	C817 C5	R304 D6	R804 B6	
C117 B4	C818 C4	R501 A1	R805 B6	
C118 B3	C819 C4	R502 A2	R806 B6	
C119 A4	C820 B4	R503 B2	R807 B5	
C120 B3	C821 B5	R504 C2	R808 B6	
C301 D7	C822 C6	R505 B2	R809 B6	
C302 D6	C823 B5	R506 C1	R810 B6	
C501 D1	C824 B4	R507 C1	R811 C6	
C502 B2	C825 A5	R508 C1	R812 C5	
C503 C1	C826 B4	R601 A5	R813 B4	
C504 C1	C827 B5	R602 A5	R814 B5	
C505 A2	C828 B5	R603 A5	R815 B4	
C506 B2	C829 B5	R605 A6	R816 C5	
C507 C2	C830 C5	R606 A5	R817 C5	
C508 D1	D101 A4	R607 A5	R818 C5	
C509 B2	D102 B3	R609 B7	R819 C5	
C510 A2	D103 A3	R810 B7	R820 B6	
C511 A1	D104 A2	R611 A7	R821 C5	
C601 A6	D105 B3	R612 B7	R822 B4	
C602 B6	D106 E6	R613 A7	R823 B4	
C603 B6	D301 D7	R614 A7	R824 B4	
C609 E6	D601 B7	R615 A7	R825 B4	
C610 A6	D602 B7	R616 A6	R826 A4	
C612 D6	D603 B6	R617 B7	R827 A4	
C613 B7	D701 D1	R618 C7	R828 B6	
C656 C7	E701 D3	R620 A7	R829 B5	
C657 C6	F101 E6	R621 A7	R830 B5	
C658 B7	FL81 C6	R631 B6	R831 A5	
C659 B7	FL82 C6	R632 B6	R832 B5	
C680 B7	IC11 A3	R633 B6	R833 B5	
C681 B7	IC31 E7	R634 B6	R834 B6	
C682 B7	IC51 C1	R635 C7	R835 B6	
C683 C7	IC81 B7	R636 C7	R837 B6	
C684 C7	IC82 A7	R637 C7	R838 B6	
C685 A7	IC71 D4	R638 C7	R840 C5	
C701 D3	IC81 B5	R656 B7	R841 B6	
C702 E4	J102 E7	R702 D3	R842 B6	
C703 E4	J104 A2	R703 E3	R843 B6	
C704 D4	J402 E2	R704 D4	R844 B5	
C705 D3	J601 A1	R705 E4	R845 B6	
C706 D3	J601 A5	R706 D4	R846 B6	
C707 D3	J701 D1	R707 D3	R847 B6	
C708 D2	J702 B1	R708 C7	R848 A6	
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C711 D6	L102 B4	R711 C7	R851 A5	
C712 D7	L103 A2	R712 D6	R854 C4	
C713 D7	L104 B2	R713 D7	R855 C4	
C714 C7	L105 B3	R714 D7	R856 C4	
C715 E4	L801 A5	R715 D7	R857 C5	
C716 C6	L701 E4	R717 C7	R858 C5	
C717 E2	L702 D3	R718 D7	T101 B3	
C718 D2	L711 D5	R719 D7	TP13 A2	
C719 E8	L712 D6	R720 D7	TP31 D7	
C720 D6	L713 C6	R731 D7	TP51 A1	
C721 E4	Q101 A3	R732 D6	TP62 B1	
C722 D4	Q601 B7	R733 D7	TP62 A6	
C723 C4	Q602 A7	R735 D3	TP63 A7	
C724 D6	Q603 A7	R736 D3	TP64 A7	
C725 D4	Q701 E4	R737 D2	TP70 D4	
C726 D5	Q702 C7	R738 D2	TP71 D2	
C727 D6	Q703 C7	R739 D3	TP72 D2	
C728 D6	Q704 C7	R740 D3	TP73 E4	
C729 D5	Q705 D2	R741 D3	TP74 D3	
C730 E5	Q706 D6	R742 D2	TP75 D5	
C731 D6	Q707 D7	R743 D3	TP76 D5	
C732 D6	Q708 D7	R745 D2	TP78 B1	
C733 E6	Q709 D6	R746 D1	TP81 A5	
C734 C1	Q710 D6	R747 D1	X601 A6	
C735 D6	Q711 D5	R750 D4	X602 A7	
C736 D2	Q712 D2	R751 E4	X701 D4	
C801 B5	R101 A3	R752 D5	X702 C5	





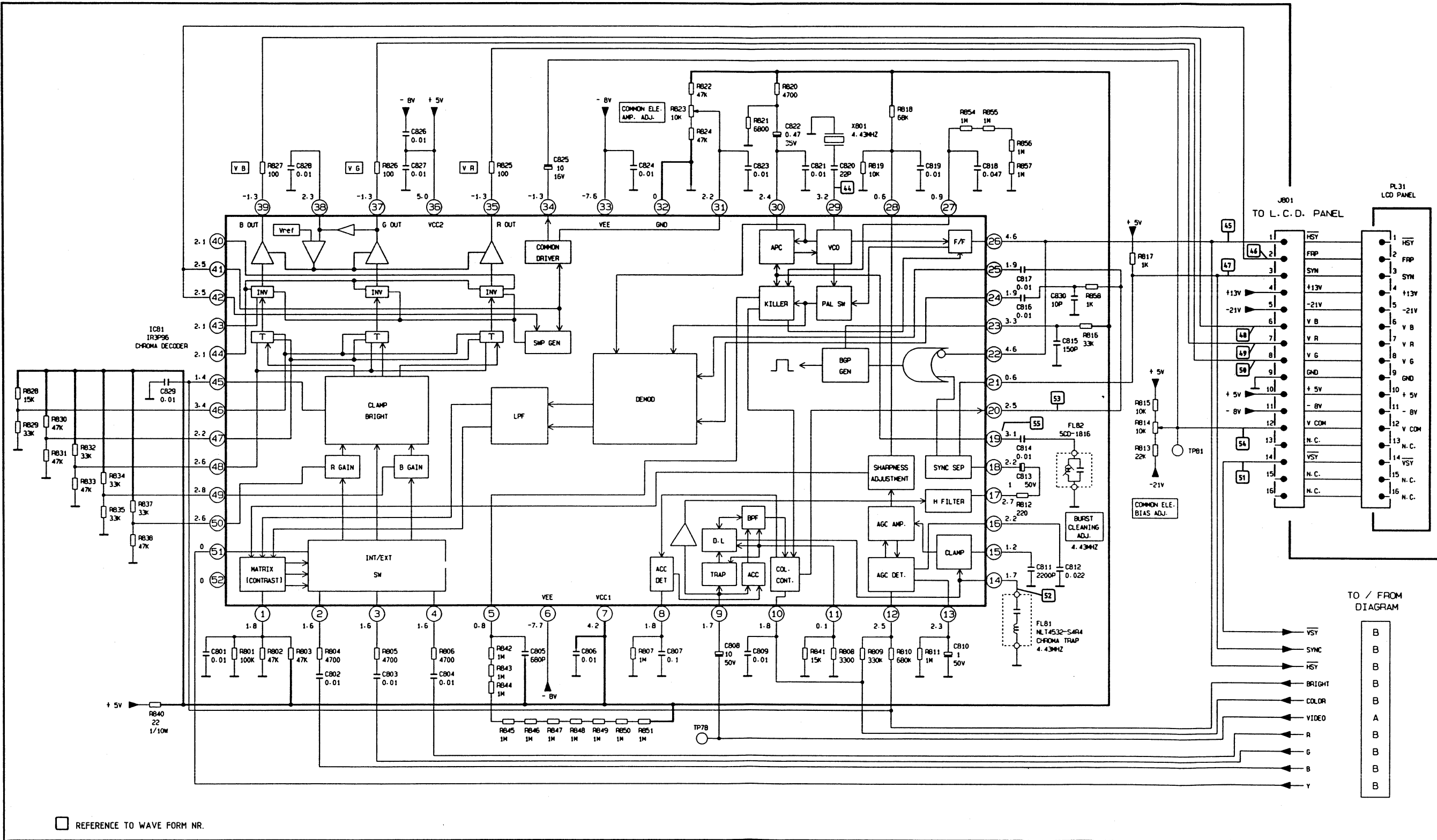
3 E5  
4 D6  
1 C4  
1 A7





## CHROMA BLOCK P002 AND LCD PANEL PL31

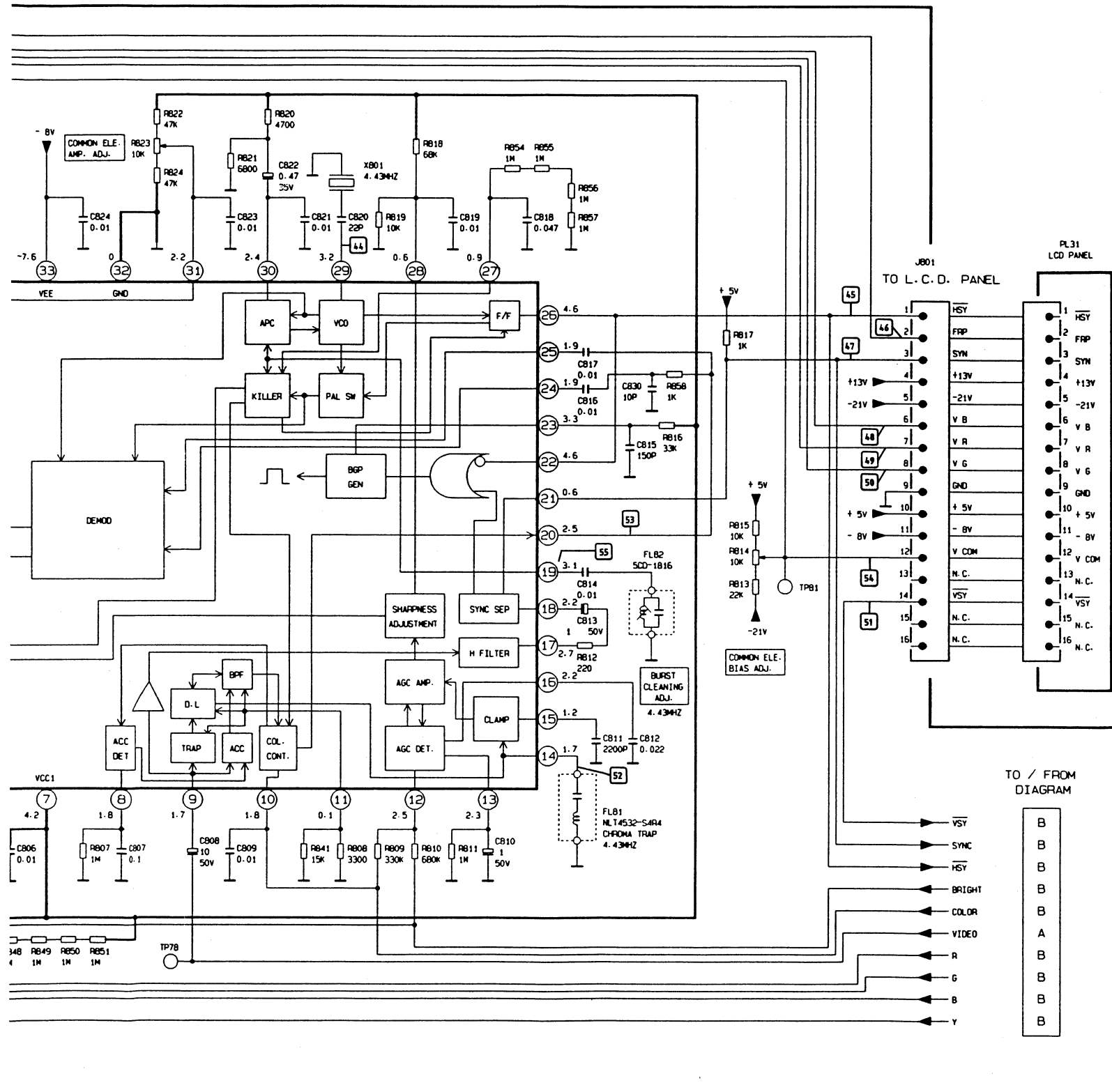
P.C. BOARD P002



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C802 C6	R858 H3
C803 C6	TP78 F6
C804 D6	TP81 I4
C805 D6	X801 F2
C806 E5	voor
C807 E5	schema C
C808 F5	
C809 F5	
C810 G5	
C811 H5	
C812 H5	
C813 H4	
C814 H4	
C815 H3	
C816 H3	
C817 H3	
C818 G2	
C819 G2	
C820 F2	
C821 F2	
C822 F2	
C823 F2	
C824 E2	
C825 D2	
C826 C2	
C827 C2	
C828 C2	
C829 B4	
C830 H3	
EX03 J4	
FL81 H5	
FL82 H4	
IC81 C6	
J801 I4	
R801 B5	
R802 C5	
R803 C6	
R804 C6	
R805 C5	
R806 D5	
R807 E5	
R808 F5	
R809 G5	
R810 G5	
R811 G5	
R812 H4	
R813 I4	
R814 I4	
R815 I4	
R816 H3	
R817 H3	
R818 G2	
R819 G2	
R820 F2	
R821 F2	
R822 E2	
R823 E2	
R824 E2	
R825 D2	
R826 C2	
R827 C2	
R828 A4	
R829 A4	
R830 A4	
R831 A4	
R832 A4	
R833 A4	
R834 A4	
R835 A5	
R837 B5	
R838 B5	
R840 B8	
R841 F5	
R842 D5	
R843 D5	
R844 D8	
R845 D5	
R846 D5	
R847 D5	
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R854 G2	
R855 G2	
R856 H2	

## PANEL PL31

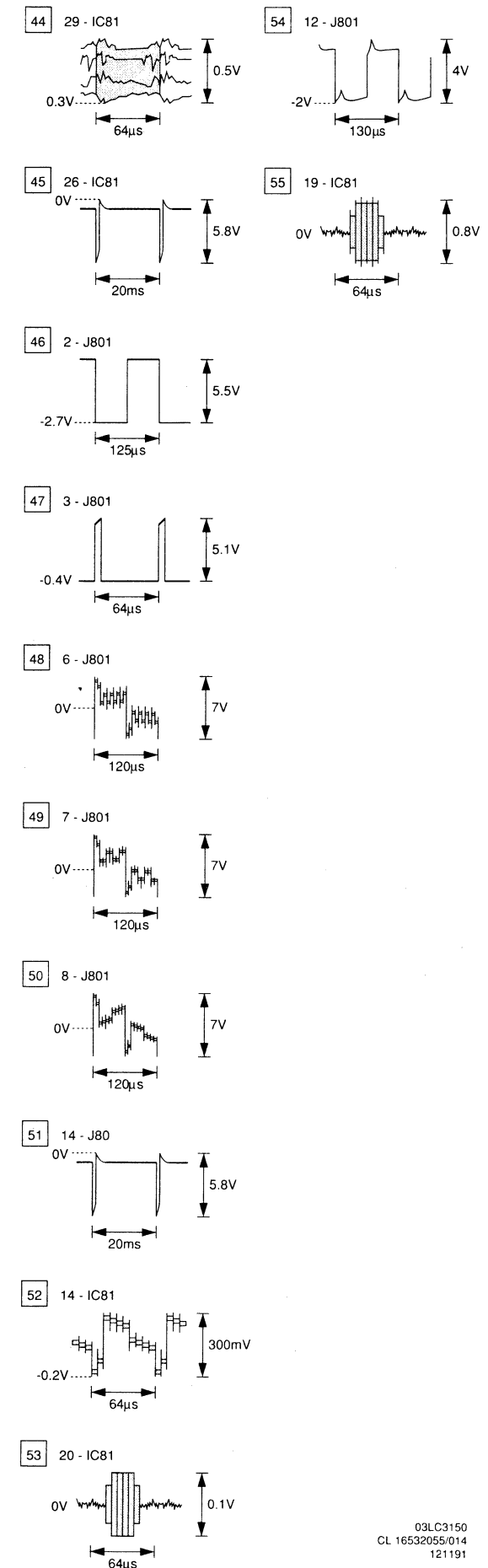
P.C. BOARD P002



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C803 C8  
C804 D8  
C805 D5  
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C808 F6  
C809 F6  
C810 G6  
C811 H5  
C812 H5  
C813 H4  
C814 H4  
C815 H3  
C816 H3  
C817 H3  
C818 G2  
C819 G2  
C820 F2  
C821 F2  
C822 F2  
C823 F2  
C824 E2  
C825 D2  
C826 C2  
C827 C2  
C828 C2  
C829 B4  
C830 H3  
EX03 J4  
FL81 H5  
FL82 H4  
IC81 C6  
J801 I4  
R801 B5  
R802 C5  
R803 C5  
R804 C5  
R805 C5  
R806 D5  
R807 E5  
R808 F6  
R809 G6  
R810 G5  
R811 G5  
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R814 I4  
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R816 H3  
R817 H3  
R818 G2  
R819 G2  
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R822 E2  
R823 E2  
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R825 D2  
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R827 C2  
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R831 A4  
R832 A4  
R833 A4  
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R837 B5  
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R846 D5  
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R855 G2  
R856 H2

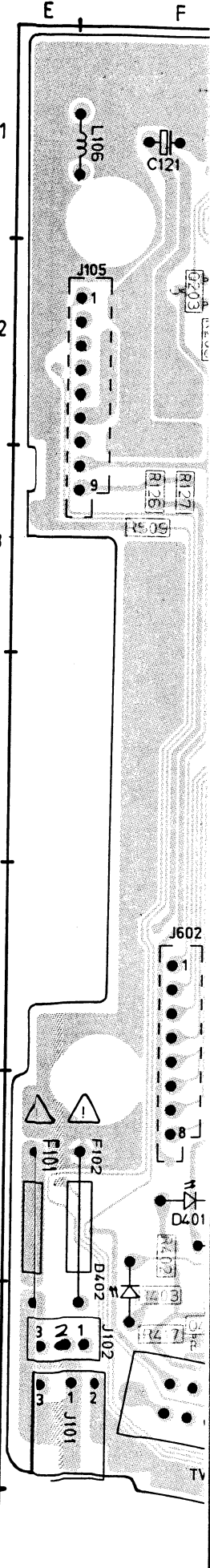
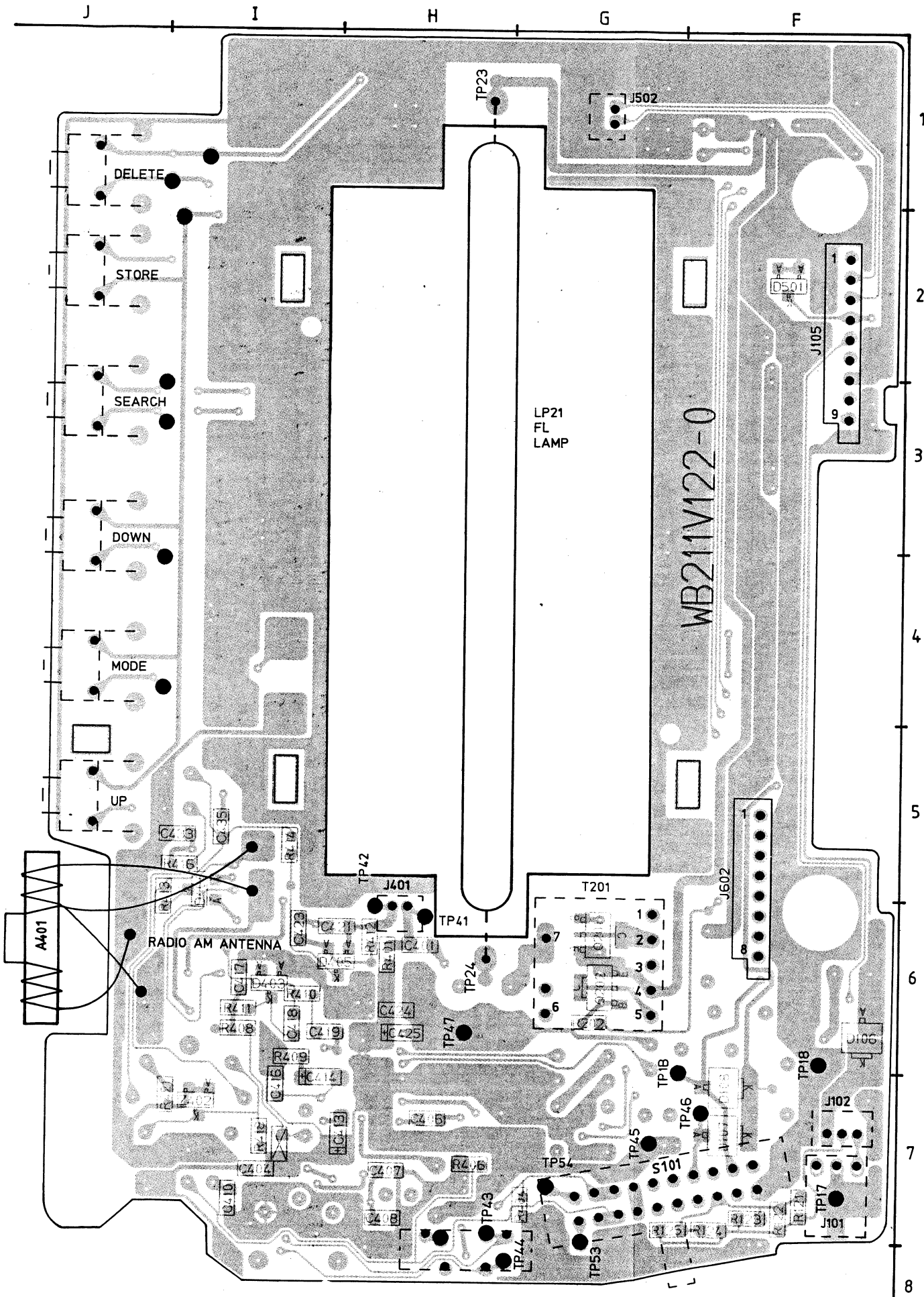
R857 H2  
R858 H3  
TP78 F6  
TP81 I4  
X801 F2  
voor  
schema C

## WAVE FORMS FOR DIAGRAM C

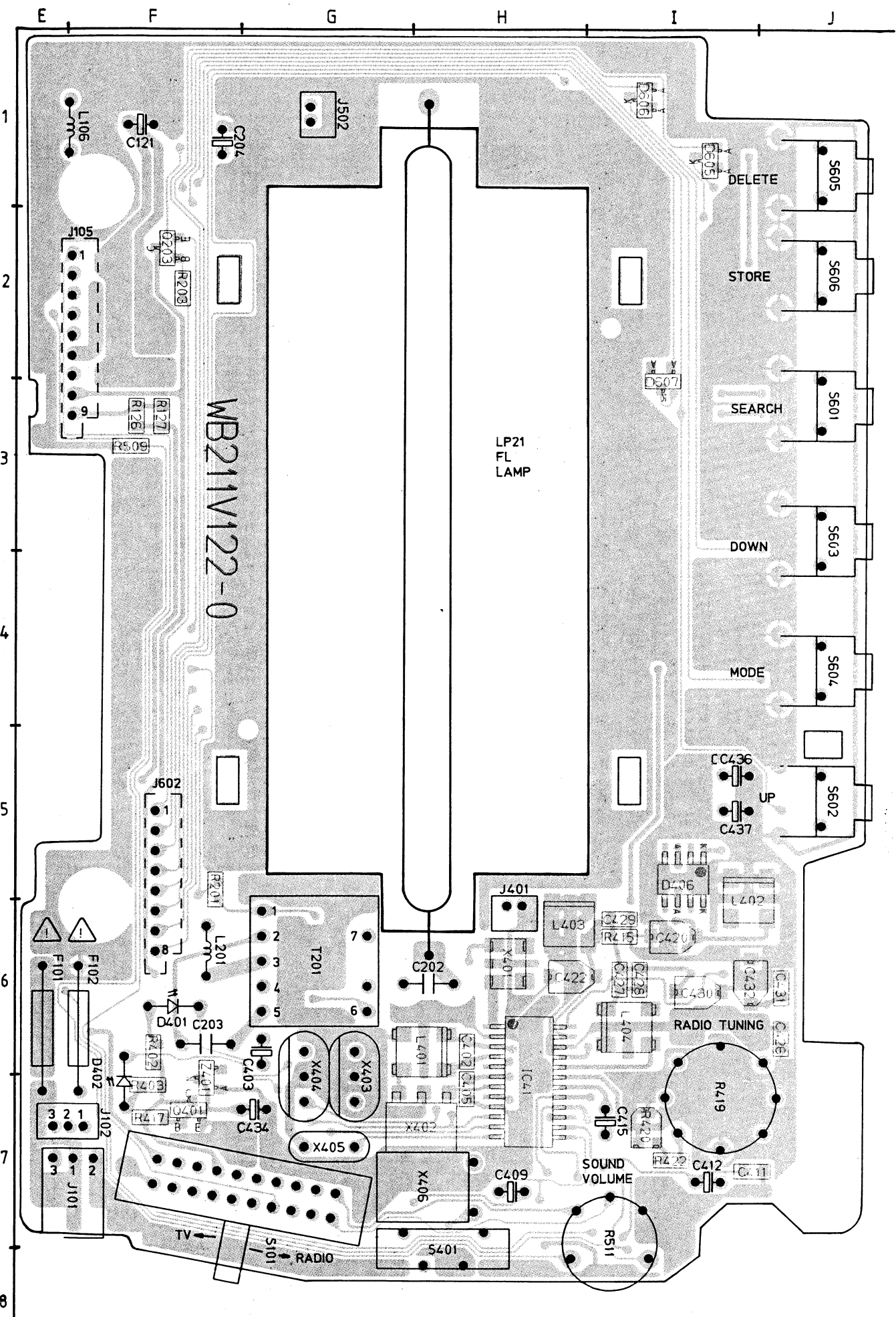
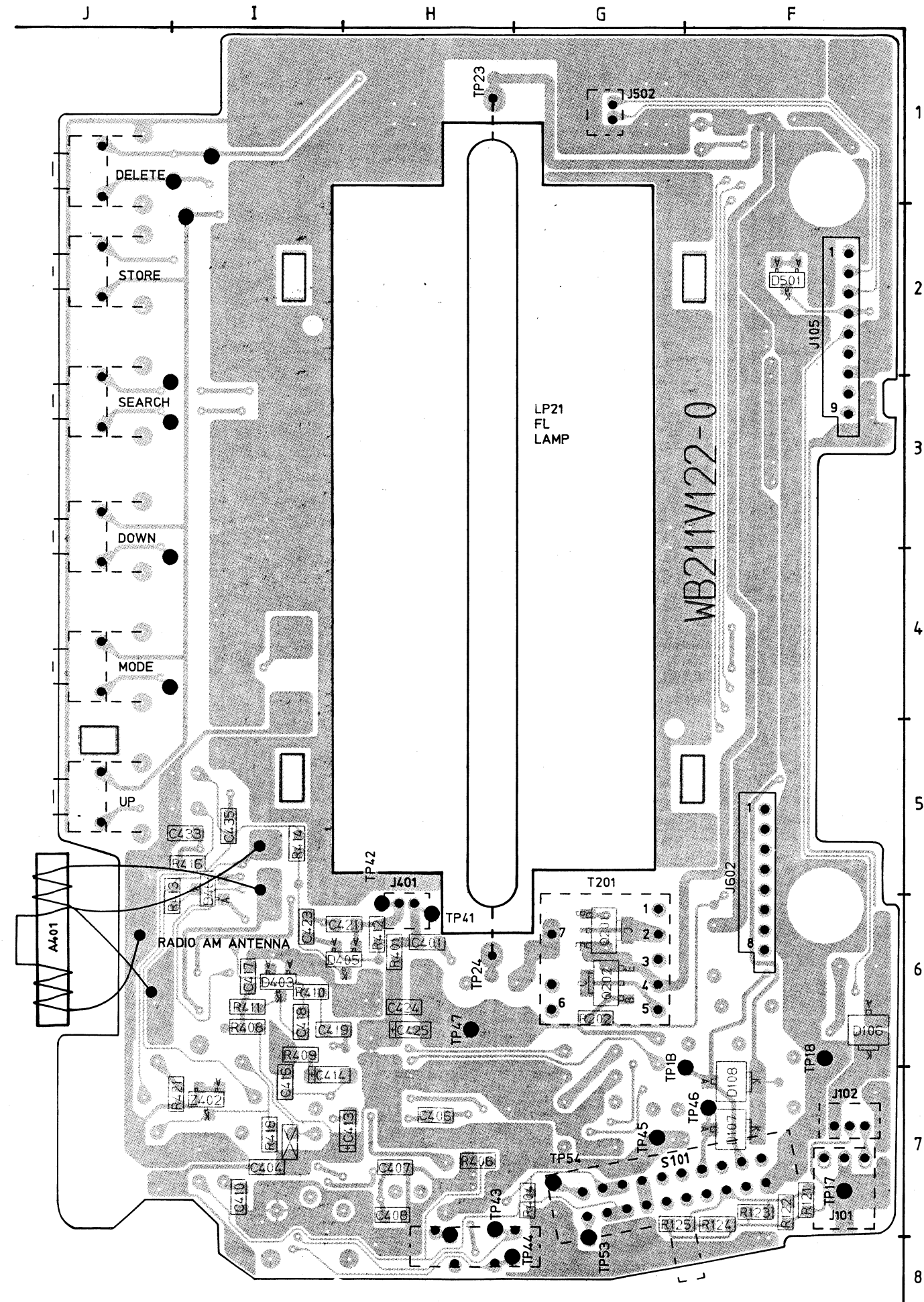




- |         |         |
|---------|---------|
| C121 F1 | R122 F7 |
| C202 G6 | R123 F7 |
| C203 F6 | R124 F7 |
| C204 F1 | R125 G7 |
| C401 H6 | R126 F3 |
| C402 H6 | R127 F3 |
| C403 G7 | R201 F6 |
| C404 I7 | R202 G6 |
| C405 H7 | R203 F2 |
| C406 H7 | R401 H6 |
| C407 H7 | R402 F6 |
| C408 H7 | R403 F7 |
| C409 H7 | R404 G7 |
| C410 I7 | R406 H7 |
| C411 J7 | R408 I6 |
| C412 I7 | R409 I6 |
| C413 H7 | R410 I6 |
| C414 I7 | R411 I6 |
| C415 I7 | R412 H6 |
| C416 I7 | R413 I6 |
| C417 I6 | R414 I6 |
| C418 I6 | R415 I6 |
| C419 I6 | R416 I6 |
| C420 I6 | R417 F7 |
| C421 H6 | R418 I7 |
| C422 H6 | R419 I7 |
| C423 I6 | R420 I7 |
| C424 H6 | R421 I7 |
| C425 H6 | R422 I7 |
| C426 J6 | R509 F3 |
| C427 I6 | R511 I6 |
| C428 I6 | R703 E3 |
| C429 I6 | R705 E4 |
| C430 I6 | R751 E4 |
| C431 J6 | S101 G7 |
| C432 J6 | S401 H6 |
| C433 I6 | S801 J3 |
| C434 G7 | S802 J5 |
| C435 I6 | S803 J4 |
| C436 I6 | S804 J4 |
| C437 I6 | S805 J1 |
| C608 E6 | S806 J2 |
| C702 E4 | T201 G6 |
| C703 E4 | TP17 F7 |
| C715 E4 | TP18 F6 |
| C717 E2 | TP18 F7 |
| C718 E6 | TP23 H1 |
| C721 E4 | TP24 H6 |
| C730 E6 | TP41 H6 |
| C733 E6 | TP42 H6 |
| D106 E6 | TP43 H6 |
| D107 F7 | TP44 G8 |
| D108 F7 | TP45 G7 |
| D401 F6 | TP46 F7 |
| D402 F7 | TP47 H6 |
| D403 I6 | TP53 G8 |
| D404 I6 | TP54 G7 |
| D405 H6 | TP73 E4 |
| D406 I6 | X401 H6 |
| D501 F2 | X402 H7 |
| D606 I1 | X403 G7 |
| D606 I1 | X404 G7 |
| D607 I3 | X405 G7 |
| F101 E6 | X406 H7 |
| F102 F6 | X703 E6 |
| IC31 E7 | Z401 F7 |
| IC41 H6 | Z402 I7 |
| J101 F7 |         |
| J102 E7 |         |
| J105 F2 |         |
| J401 H6 |         |
| J402 E2 |         |
| J602 G1 |         |
| J602 F5 |         |
| L106 F1 |         |
| L201 F6 |         |
| L401 H6 |         |
| L402 I6 |         |
| L403 H6 |         |
| L404 I6 |         |
| L701 E4 |         |
| Q201 G6 |         |
| Q202 G6 |         |
| Q203 F2 |         |
| Q401 F7 |         |
| Q701 E4 |         |
| R121 F7 |         |



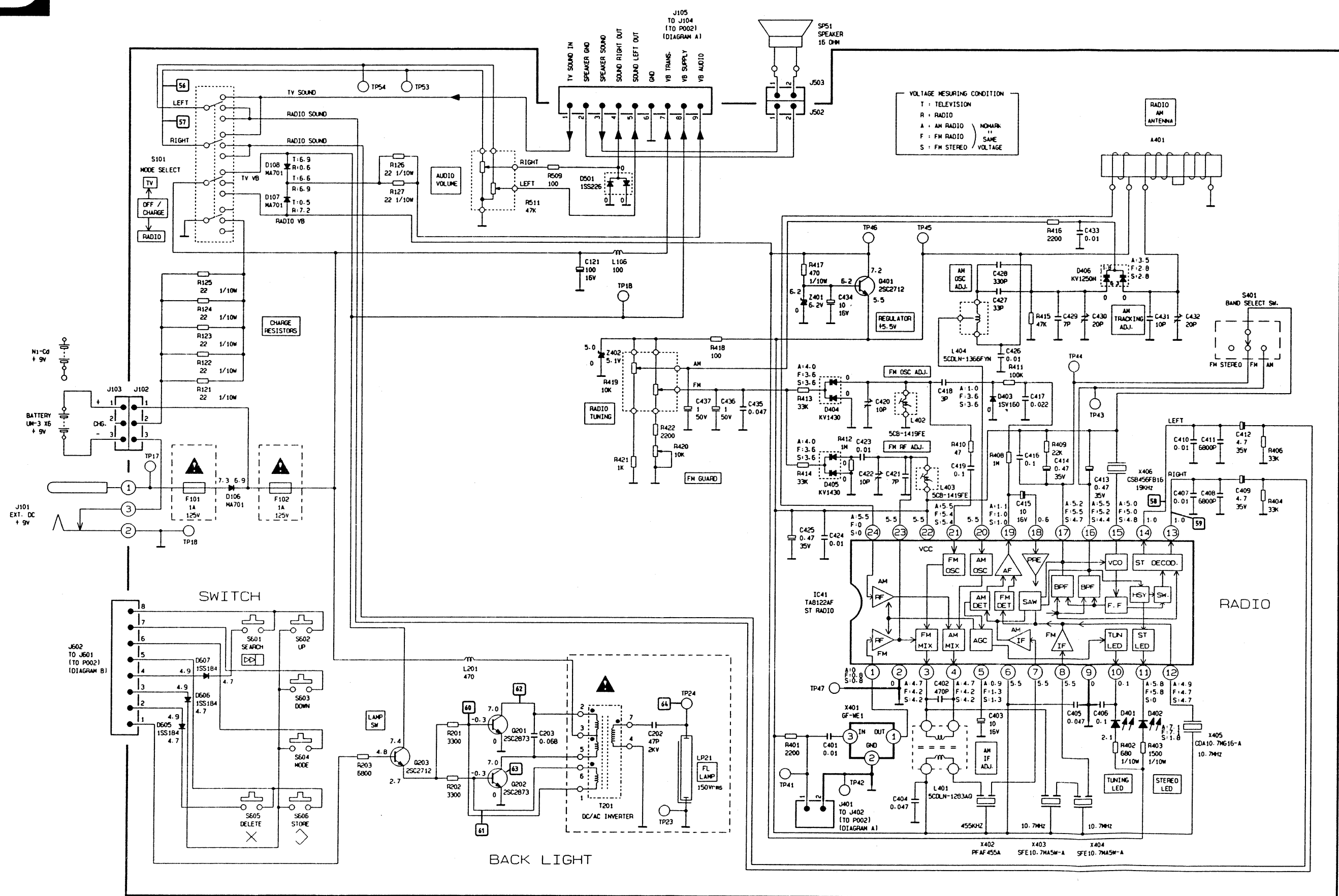
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24 F7  
26 G7  
28 F3  
27 F3  
01 F8  
02 G8  
03 F2  
01 H8  
02 F8  
03 F7  
04 G7  
08 H7  
08 I8  
09 I8  
10 I8  
11 I8  
12 H8  
13 I8  
14 I8  
16 I8  
16 I8  
17 F7  
18 I7  
19 I7  
20 I7  
21 I7  
22 I7  
08 F3  
11 I8  
03 E3  
06 E4  
51 E4  
01 G7  
01 H8  
01 J3  
02 J6  
03 J4  
04 J4  
06 J1  
06 J2  
01 G8  
17 F7  
18 F8  
18 F7  
23 H1  
24 H6  
41 H8  
42 H8  
43 H8  
44 G8  
46 G7  
46 F7  
47 H8  
63 G8  
64 G7  
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02 H7  
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04 G7  
06 G7  
06 H7  
03 E5  
01 F7  
02 I7







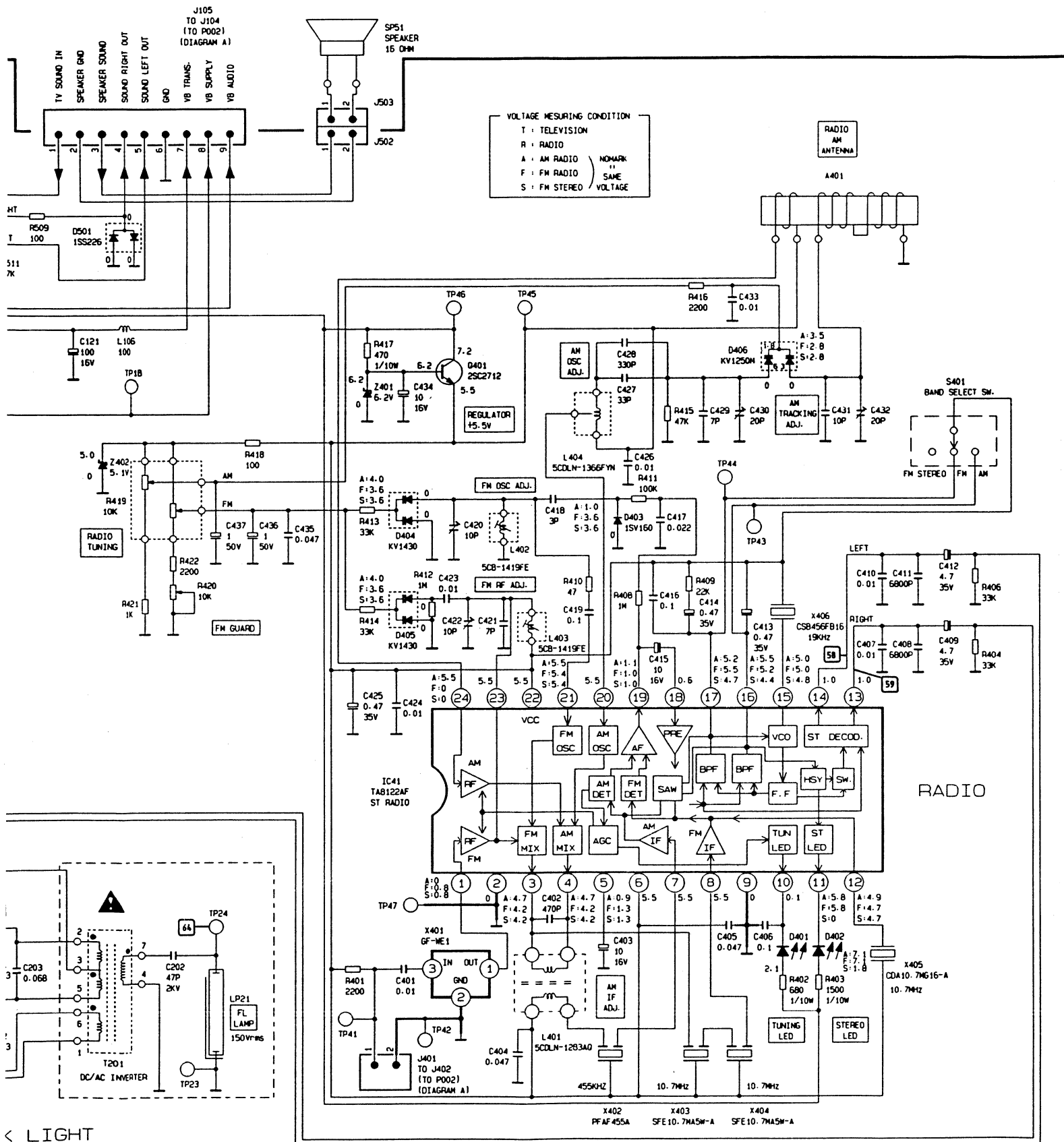
RADIO B. LIGHT and SWITCH BLOCK P003



REFERENCE TO WAVE FORM NR.

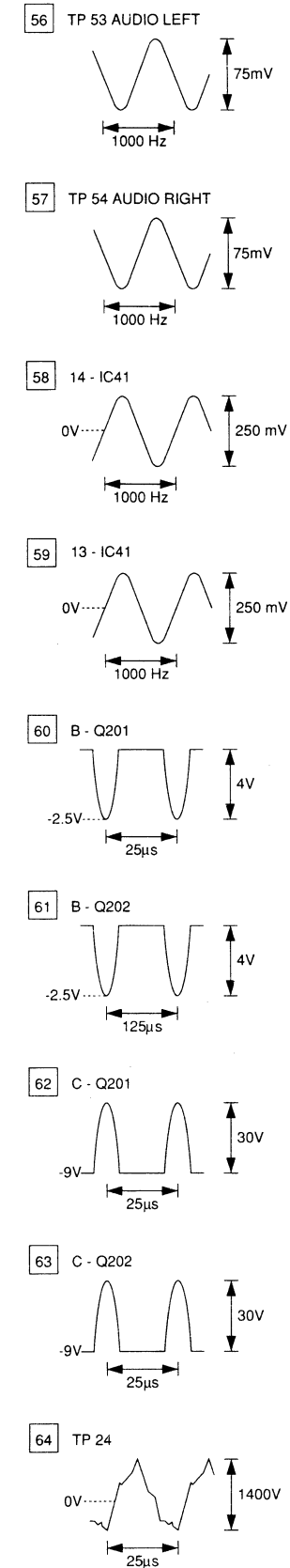
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C402 G6	R405
C403 H6	R406
C404 G6	R407
C405 H6	R408
C406 I6	R409
C407 I4	R410
C408 I4	R411
C409 J4	R412
C410 I4	R413
C411 I4	R414
C412 J4	R415
C413 I4	R416
C414 H4	R417
C415 H4	R418
C416 H4	R419
C417 H4	R420
C418 G4	R421
C419 H4	R422
C420 G4	R423
C421 G4	R424
C422 G4	R425
C423 G4	R426
C424 G6	R427
C425 F6	R428
C426 H3	R429
C427 H3	R430
C428 H3	R431
C429 H3	R432
C430 H3	R433
C431 I3	R434
C432 I3	R435
C433 H3	R436
C434 G3	R437
C435 F4	R438
C436 F4	R439
C437 F4	R440
D106 B4	R441
D107 C2	R442
D108 C2	R443
D401 I6	R444
D402 I6	R445
D403 H4	R446
D404 G4	R447
D405 G4	R448
D406 I3	R449
D501 E2	R450
D605 B6	R451
D606 B6	R452
D607 B6	R453
F101 B4	R454
F102 C4	R455
IC41 G6	R456
J101 B4	R457
J102 B4	R458
J106 E2	R459
J401 G6	R460
J602 F2	R461
J602 B5	R462
L106 E3	R463
L201 D6	R464
L401 G6	R465
L402 G4	R466
L403 G4	R467
L404 H3	R468
LP21 F6	R469
Q201 D6	R470
Q202 D6	R471
Q203 D6	R472
Q401 G3	R473
R121 B4	R474
R122 B3	R475
R123 B3	R476
R124 B3	R477
R125 B3	R478
R126 D2	R479
R127 D2	R480
R201 D6	R481
R202 D6	R482
R203 C6	R483
R401 F6	R484
R402 I6	R485
R403 I6	R486
R404 J4	R487

LOCK P003

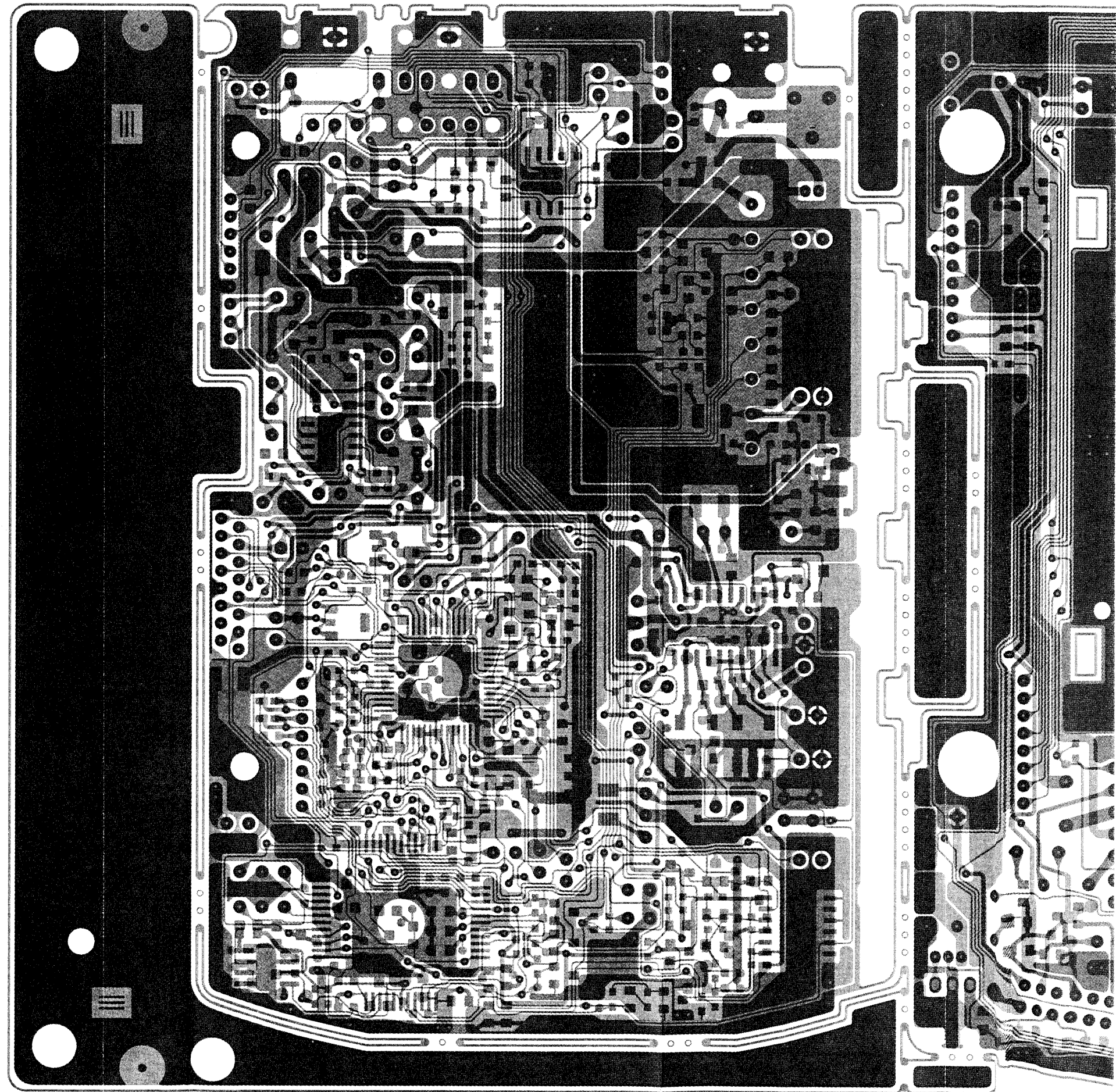


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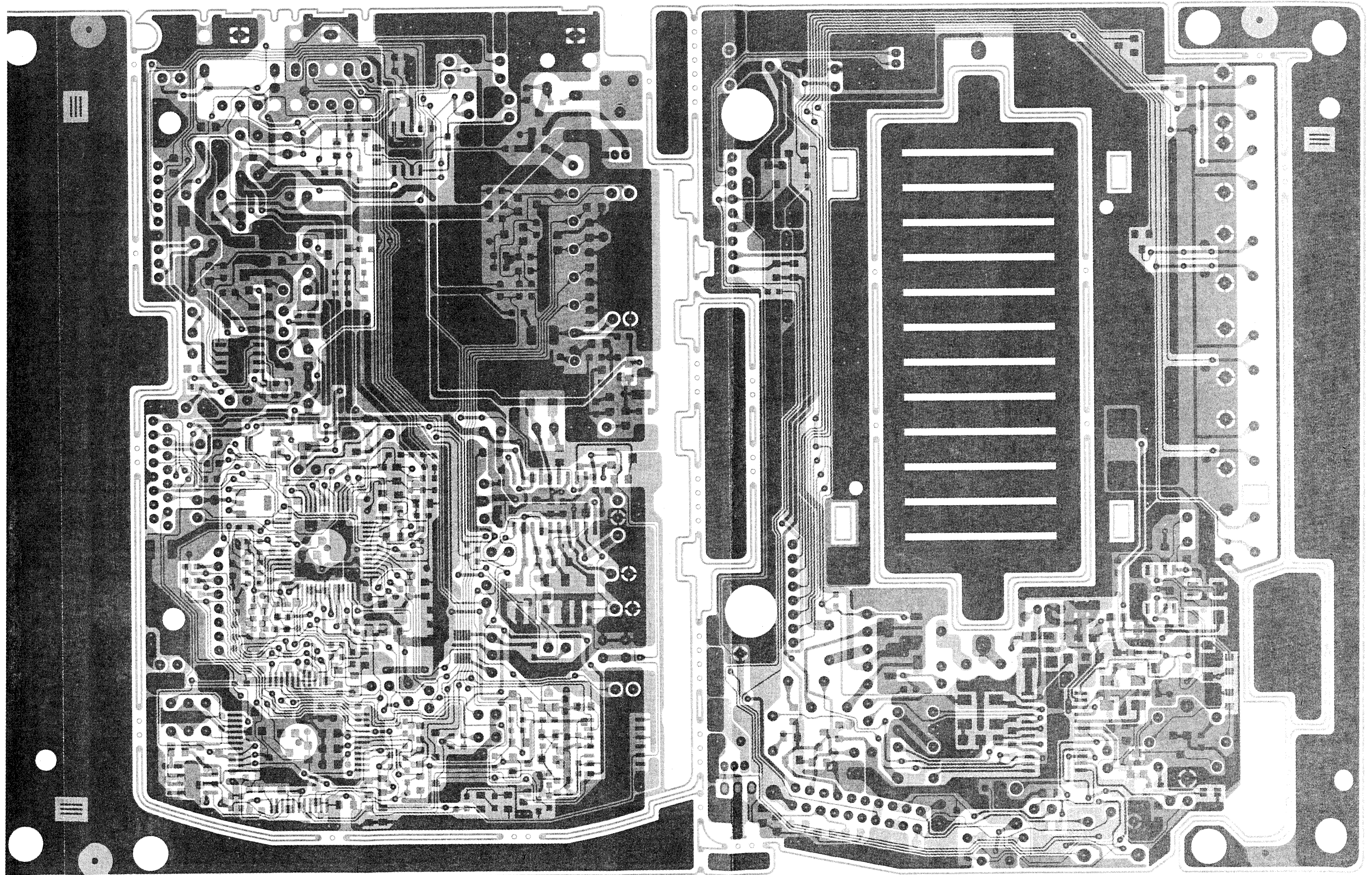
### WAVE FORMS FOR DIAGRAM D



03LC3150  
CL 16532055/015  
121191









## Electrical instructions

CHASSIS LCD3-ECO

7.1

### 1. Adjustments to the main panel (see Fig. 7.1)

#### 1.1 5V power supply (R103)

- Connect a DC voltmeter to TP13.
- Set potentiometer (R103) so that the DC voltage at TP13 is  $5 \pm 0.05$  (V).

#### 1.2 Detector coil (L712)

- Apply an unmodulated IF-signal to TP74.
- \* Remark:  
IF-signal output must be approx. 90dB $\mu$ V.  
Frequency 38,9MHz.  
IF-signal should not overload the demodulator.
- Connect an oscilloscope to TP75.
- Apply an external AGC voltage (2,2V) to TP73.
- Adjust the Detector coil (L712) so that the DC voltage at TP75 becomes minimum.

#### 1.3 AFT coil (L711), coarse adjustment.

- Apply an unmodulated IF-signal to TP74.
- \* Remark:  
IF-signal output must be approx. 90dB $\mu$ V.  
Frequency 38,9MHz.  
IF-signal should not overload the demodulator.
- Connect an oscilloscope to TP76.
- Adjust the AFT-coil (L711) so that the DC voltage at TP76 is 2.5V.

#### 1.4 RF-AGC (R751)

- Tune Channel (39 Ch) to a standard colour bar pattern signal (53dB $\mu$ V).
- Apply a 1 kHz signal 70mVpp (sinusoidal) to TP71 (RF AGC testpoint of the tuner) via the matching network outlined (see fig. 7.2).
- Connect an oscilloscope to TP75.
- Turn potentiometer R751 until waves appear and then turn in the opposite direction until the waves disappear.
- Increase the antenna input signal by 3 dB and check whether the waves appear again.

#### 1.5 AFT coil (L711), fine adjustment.

- Receive a PAL colour bar signal (UHF).
- Apply an unmodulated IF-signal to TP74.
- \* Remark:  
IF-signal output must be approx. 70dB $\mu$ V.  
Frequency 38,9MHz.  
IF-signal should not overload the demodulator.
- Connect an oscilloscope to TP75.
- Adjust the AFT-coil (L711) so that the waveform becomes zero beat (see fig.7.3)

#### 1.6 Burst cleaning (FL82)

- Receive a PAL colour bar signal (UHF).
- Connect a two input oscilloscope to pin 6 and 7 of J801.
- Adjust FL82 so that a portion of magenta becomes stable.

#### 1.7 Common electrode, amplitude (R823)

- Apply a grey scale bar pattern.
- Set the brightness control in the mid-position.

- Set potentiometer R823 so that the grey steps can be seen.

#### 1.8 Common electrode, picture contrast (R814)

- Apply a grey scale bar pattern.
- Set the brightness control to mid position.
- Adjust R814 so that the picture contrast becomes maximum.

P002

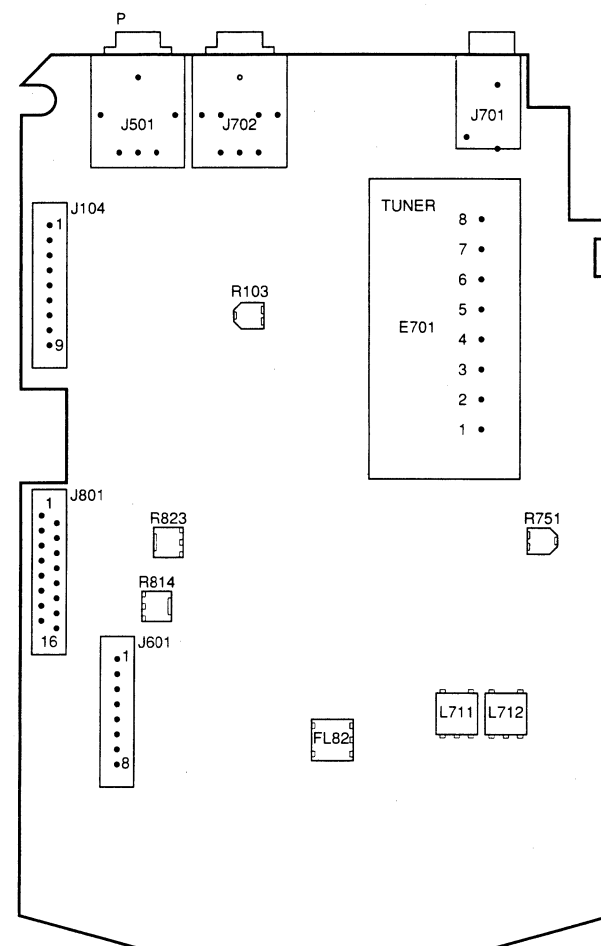


Fig. 7.1

03LC3150  
CL 16532055/016  
121191

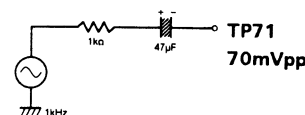


Fig. 7.2

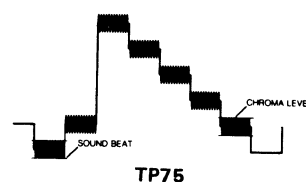


Fig. 7.3

7.2 CHASSIS LCD3-ECO

## Electrical instructions

### 2. Adjustments to the radio Part (See Fig. 7.4)

#### 2.1 AM oscillator (L404)

- Set the AM/FM Stereo selector switch S450 to AM.
- Turn the tuning control R450 to the low-end.
- Connect an oscilloscope to pin 3 on J104.
- Receive an RF signal from a signal generator (525KHz, 400Hz AM 30% mod.)
- Set the AM oscillator coil (L404) for max. sound output.

#### 2.2 AM oscillator (C430)

- Set the AM/FM Stereo selector switch S450 to AM.
- Turn the tuning control R450 to the low-end.
- Connect an oscilloscope to pin 3 on J104.
- Receive an RF signal from a signal generator (1620kHz, 400Hz AM 30% mod.)
- Adjust the trim-capacitor C430 for maximum sound.

#### 2.3 AM tracking (C432)

- Set the AM/FM switch S450 to AM.
- Receive an RF signal from signal generator (1400kHz, 400Hz AM 30% mod.).
- Connect an oscilloscope to pin 3 of J104.
- Adjust the AM trim-capacitor C432 for maximum sound output.

#### 2.4 AM tracking (Bar antenna, A401)

- Set the AM/FM switch S450 to AM.
- Receive an RF signal from signal generator (600kHz, 400Hz AM 30% mod.).
- Connect an oscilloscope to pin 3 of J104.
- Adjust the AM Bar antenna for maximum sound output by moving the coil.

#### 2.5 AM IF (L401)

- Set the AM/FM switch S450 to AM.
- Receive an RF signal from signal generator (1000kHz, 400Hz AM 30% mod.).
- Connect an oscilloscope to pin 3 of J104.
- Adjust coil L401 for maximum sound output.

#### 2.6 FM oscillator (L402)

- Set the AM/FM switch S450 to FM Mono.
- Turn the tuning control R450 to the low-end.
- Connect an oscilloscope to pin 3 of J104.
- Receive an RF signal (87,7MHz 1kHz FM, 40KHz mod.)
- Adjust L402 for maximum sound output.

#### 2.7 FM oscillator (C420)

- Set the AM/FM switch S450 to FM mono.
- Turn the tuning control R450 to the high-end.
- Connect an oscilloscope to pin 3 on J104.
- Receive an RF signal (108,5MHz, 1kHz FM, 40KHz mod.)
- Adjust C420 for maximum output.
- Remark: Repeat paragraph 2.6

#### 2.8 FM RF (L403)

- Set the AM/FM switch S450 to FM mono.
- Connect an oscilloscope to pin 3 on J104.
- Receive a weak RF signal (90MHz, 1kHz FM, 40kHz mod.)
- Adjust L403 for maximum sound output.

#### 2.9 FM RF (C422)

- Set the AM/FM switch S450 to FM stereo.
- Connect an oscilloscope to pin 3 on J104.
- Receive a RF signal (106MHz, 1kHz FM, 40kHz mod.)
- Adjust the RF capacitor C422 for maximum sound output.
- Remark: Repeat paragraph 2.8

P003

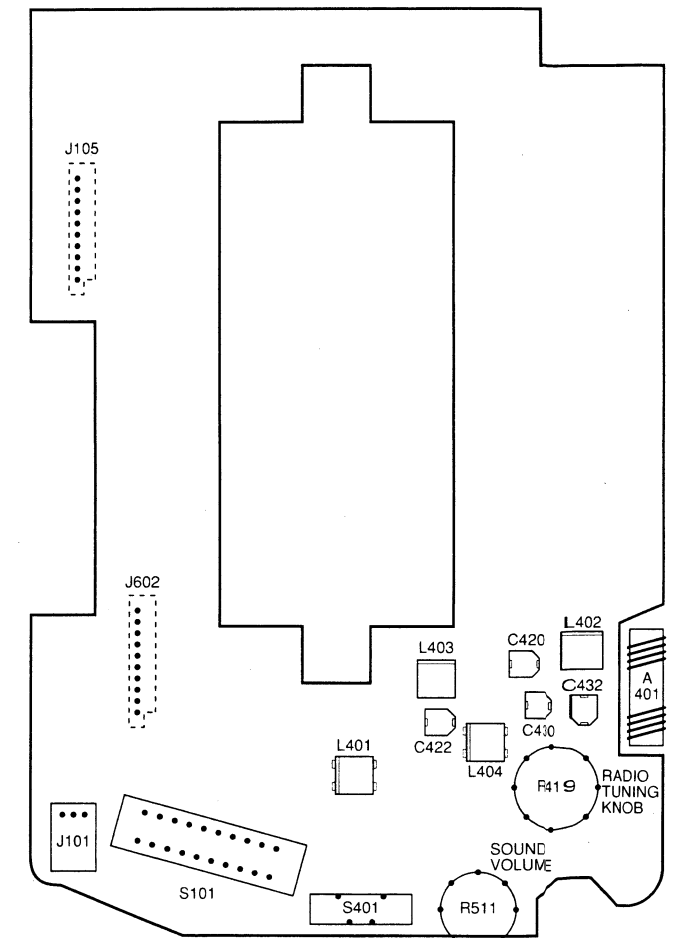


Fig. 7.4

03LC3150  
CL 16532055/017  
121191

## 1. Servicing of SMDs (Surface Mounted Devices)

### 1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.  
The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

### 1.2. Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 8.1A) or:
- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 8.1B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 8.1C).

#### Caution on removal:

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250°C).
- The chip, once removed, must **never** be reused.

### 1.3 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 8.2A).
- Next complete the soldering of the terminals of the component (see Fig. 8.2B).

#### Caution when attaching SMDs:

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible; care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250°C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 8.3).

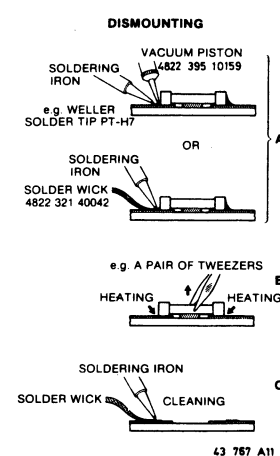


Fig. 8.1

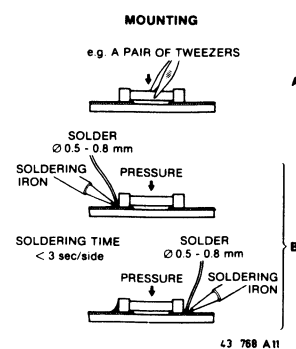


Fig. 8.2

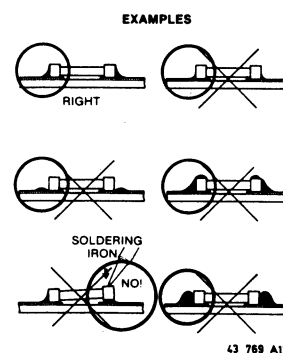


Fig. 8.3

## 2. Repair mode

If the "MODE" key and the "SEARCH" key are pressed at the same time, while the set is switched on from "OFF" position in "TV" position, the set will enter into the repair mode.

When the set is in the repair mode, this will be indicated on the screen by means of OSD information. The indication is: "PEPAIR MODE".

The following operations can be selected by means of pushing one of the keys during repair mode.

SEARCH	: VHF-L band, lowest tuning voltage
STORE	: VHF-L band, highest tuning voltage
MODE	: VHF-H band, lowest tuning voltage
DELETE	: VHF-H band, highest tuning voltage
MULTI -	: UHF band, lowest tuning voltage
MULTI +	: UHF band, highest tuning voltage

Reset of the repair mode can be done by putting "POWER" switch in "OFF" position.

## 3. Error messages

If an error is detected by the microprocessor the program enters an infinite loop. Also (if possible) the error messages F0 or F1 or F2 are displayed on the screen.

F0 means: Internal RAM error

F1 means: Timer error

F2 means: Eeprom error

## Main, Radio and Backlight P.C. Board

<b>ANTENNA</b>			C504	4822 124 22728	100µF 16V	C810	4822 124 23464	1µF 50V
A401	4822 158 60594	AM BAR Ant.	C505	4822 124 22725	10µF 16V	C811	4822 122 32697	2200pF
A701	4822 303 30411	ROD Antenna	C506	4822 122 33712	470pF	C812	4822 122 32701	0.022µF
<b>CAPACITORS</b>			C507	4822 122 33712	470pF	C813	4822 124 23464	1µF 50V
C101	4822 122 32698	4700pF	C508	4822 124 22725	10µF 16V	C814	4822 122 33689	0.01µF
C102	4822 122 33689	0.01µF	C509	4822 122 32669	47000pF	C815	5322 122 33538	150pF
C103	4822 124 22725	10µF 16V	C510	4822 122 32698	4700pF	C816	4822 122 33689	0.01µF
C104	4822 122 32697	2200pF	C511	4822 124 22727	47µF	C817	4822 122 33689	0.01µF
C105	4822 122 33714	0.1 µF	C601	4822 122 32694	47pF	C818	4822 122 32669	47000pF
C106	4822 124 22728	100µF 16V	C602	4822 122 32694	47pF	C819	4822 122 33689	0.01µF
C107	4822 124 22726	4.7µF 35V	C603	4822 122 32694	47pF	C820	4822 122 33132	22pF
C109	4822 124 22727	47µF 16V	C609	4822 124 23464	1µF 50V	C821	4822 122 33689	0.01µF
C111	4822 124 22728	100µF 16V	C610	4822 124 22728	100µF 16V	C822	4822 124 23127	0.47µF 35V
C112	4822 124 22728	100µF 16V	C612	4822 122 33714	100nF	C823	4822 122 33689	0.01µF
C114	4822 124 22727	47µF 16V	C613	4822 122 33714	100nF	C824	4822 122 33689	0.01µF
C115	4822 124 22727	47µF 16V	C656	4822 124 23464	1µF 50V	C825	4822 124 22725	10µF 16V
C116	4822 124 22726	4.7µF 35V	C657	4822 124 23464	1µF 50V	C826	4822 122 33689	0.01µF
C118	4822 122 33689	0.01µF	C658	4822 122 33689	0.01µF	C827	4822 122 33689	0.01µF
C119	4822 122 33714	0.1 µF	C659	4822 122 33689	0.01µF	C828	4822 122 33689	0.01µF
C120	4822 122 33714	0.1 µF	C660	4822 122 33689	0.01µF	C829	4822 122 33689	0.01µF
C121	4822 124 22728	100 µF	C661	4822 122 33135	220pF	C830	4822 122 33129	10pF
C202	4822 122 33711	47pF 2kV	C662	4822 122 33135	220pF	<b>DIODES</b>		
C203	4822 121 42697	0.068µF 50V	C663	4822 122 33135	220pF	D101	4822 130 81166	1SS184
C204	4822 124 23464	1 µF 50V	C664	4822 122 33689	0.01µF	D102	4822 130 81166	1SS184
C301	4822 122 33689	0.01µF	C665	4822 122 33714	100nF	D103	4822 130 81167	MA701
C302	4822 122 32686	100pF	C701	4822 122 33689	0.01µF	D104	4822 130 81167	MA701
C401	4822 122 33689	0.01µF	C702	4822 122 33714	100nF	D105	4822 130 81166	1SS184
C402	4822 122 33712	470pF	C703	4822 122 33689	0.01µF	D106	4822 130 81167	MA701
C403	4822 124 22725	10µF 16V	C704	4822 122 33689	0.01µF	D107	4822 130 81167	MA701
C404	4822 122 32669	47000pF	C705	4822 122 33714	100nF	D108	4822 130 81167	MA701
C405	4822 122 32669	47000pF	C706	4822 122 33714	100nF	D301	4822 130 81166	1SS184
C406	4822 122 33714	100nF	C707	4822 122 33714	100nF	D401	4822 130 80327	LT3G8B Green
C407	4822 122 33689	0.01µF	C708	4822 122 33714	100nF	D402	4822 130 80326	LT3D8B Red
C408	4822 122 33713	6800pF	C709	4822 122 33714	0.1µF	D403	4822 130 81174	1SV160
C409	4822 124 22726	4.7µF 35V	C710	4822 122 33714	100nF	D404	4822 130 81172	KV1430
C410	4822 122 33689	0.01µF	C711	4822 122 33714	0.1µF	D405	4822 130 81172	KV1430
C411	4822 122 33713	6800pF	C712	4822 122 33714	0.1µF	D406	4822 130 81173	KV1250M
C412	4822 124 22726	4.7µF 35V	C713	4822 122 32669	47000pF	D501	4822 130 81089	1SS226
C413	4822 124 23127	0.47µF 35V	C714	4822 122 32686	100pF	D601	4822 130 81166	1SS184
C414	4822 124 23127	0.47µF 35V	C715	4822 122 32686	100pF	D602	4822 130 81166	1SS184
C415	4822 124 22725	10µF 16V	C716	4822 124 22726	4.7µF 35V	D603	4822 130 81166	1SS184
C416	4822 122 33714	100nF	C717	4822 124 22725	10µF 16V	D605	4822 130 81166	1SS184
C417	4822 122 32701	0.022µF	C718	4822 122 33689	0.01µF	D606	4822 130 81166	1SS184
C418	4822 122 33709	3pF	C719	4822 124 23464	1µF 50V	D607	4822 130 81166	1SS184
C419	4822 122 33714	100nF	C720	4822 124 23464	1µF 50V	D701	4822 130 81168	1SS268
C420	4822 125 60158	10pF	C721	4822 122 33689	0.01µF	<b>TUNER</b>		
C421	4822 126 10006	7 pF	C722	4822 122 33714	100nF	E701	4822 210 10456	TV Tuner
C422	4822 125 60158	10pF	C723	4822 124 22727	47µF 16V	<b>TUNED CIRCUIT</b>		
C423	4822 122 33689	0.01µF	C724	4822 122 33132	22pF	FL81	4822 242 72589	4.43MHz Filter
C424	4822 122 33689	0.01µF	C725	4822 122 32697	2200pF	FL82	4822 242 81069	4.43MHz Filter
C425	4822 124 23127	0.47µF 35V	C726	4822 124 22725	10µF 16V	<b>FUSE</b>		
C426	4822 122 33689	0.01µF	C727	4822 122 32693	33pF	F101	4822 252 31046	FUSE 1A
C427	4822 122 32693	33pF	C728	4822 122 33714	100nF	F102	4822 252 31046	FUSE 1A
C428	4822 122 32703	330pF	C729	4822 122 32693	33pF	<b>INTEGRATED CIRCUIT</b>		
C429	4822 126 10006	7pF	C730	4822 124 22725	10µF 16V	IC11	4822 209 60119	FA7610N
C430	4822 125 60155	20pF	C731	4822 122 33714	100nF	IC31	4822 209 73911	4069UBF
C431	4822 122 33129	10pF	C732	4822 122 32694	47pF	IC41	4822 209 73909	TA8122AF
C432	4822 125 60155	20pF	C733	4822 124 23464	1µF 50V	IC51	5322 209 61872	NJM2073M
C433	4822 122 33689	0.01µF	C734	4822 124 22726	4.7µF 35V	IC61	4822 209 30688	TMP47C63F4
C434	4822 124 22725	10µF 16V	C735	4822 124 22725	10µF 16V	IC62	4822 209 52094	X24C02S
C435	4822 122 32669	47000pF	C736	4822 122 33714	0.1µF	IC71	4822 209 30224	M52018FP
C436	4822 124 23464	1 µF 50V	C801	4822 122 33689	0.01µF	IC81	4822 209 30687	R3P96
C437	4822 124 23464	1 µF 50V	C802	4822 122 33689	0.01µF			
C501	4822 124 22728	100µF 16V	C803	4822 122 33689	0.01µF			
C502	4822 124 22728	100 µF	C804	4822 122 33689	0.01µF			
C503	4822 122 33714	100nF	C805	4822 122 33138	680pF			
			C806	4822 122 33689	0.01µF			
			C807	4822 122 33714	100nF			
			C808	4822 124 22725	10µF 16V			
			C809	4822 122 33689	0.01µF			

## Main, Radio and Backlight P.C.Board

<b>SOCKETS</b>			R102	4822 051 30102	1k 5%	R617	4822 051 30473	47k 5%
J101	4822 265 30656	DC JACK	R103	4822 100 11604	1k 25%	R618	4822 051 30103	10k 5%
J104	4822 267 31436	9p male	R104	4822 051 30224	220k 5%	R620	4822 051 30103	10k 5%
J102	4822 265 30858	Battery Con.	R105	4822 051 30682	6.8k 5%	R621	4822 051 30103	10k 5%
J105	4822 267 50779	9p female	R106	4822 051 30472	4.7k 5%	R631	4822 051 30223	22k 5%
J401	4822 267 31204	2p	R107	4822 051 30103	10k 5%	R632	4822 051 30103	10k 5%
J501	4822 267 31022	HP Jack	R108	4822 051 30471	470 5%	R633	4822 051 30153	15k 5%
J502	4822 267 31204	2p	R109	4822 051 30224	220k 5%	R634	4822 051 30472	4.7k 5%
J503	4822 321 61413	Speaker cord	R110	4822 051 30684	680k 5%	R635	4822 051 30683	68k 5%
J601	4822 267 31435	8p male	R111	4822 051 30473	47k 5%	R636	4822 051 30682	6.8k 5%
J602	4822 267 31434	8p female	R112	4822 116 82487	0 5%	R637	4822 051 30223	22k 5%
J701	4822 267 31221	Jack (-/05/10)	R113	4822 051 30224	220k 5%	R638	4822 051 30472	4.7k 5%
J702	4822 267 31021	A/V Jack	R121	4822 111 91459	22 5%	R656	4822 051 30224	220k 5%
J801	4822 267 31206	8p female	R122	4822 111 91459	22 5%	R702	4822 051 30152	1.5k 5%
<b>COILS</b>			R123	4822 111 91459	22 5%	R703	4822 051 30682	6.8k 5%
L101	4822 157 60429		R124	4822 111 91459	22 5%	R704	4822 051 30479	47 5%
L102	4822 157 60431		R125	4822 111 91459	22 5%	R705	4822 051 30684	680 5%
L103	4822 157 53865		R126	4822 111 91459	22 5%	R706	4822 051 30222	2.2k 5%
L104	4822 157 60431		R127	4822 111 91459	22 5%	R707	4822 051 30479	47 5%
L105	4822 157 60429		R201	4822 051 30332	3.3k 5%	R708	4822 051 30473	47k 5%
L106	4822 157 53865		R202	4822 051 30332	3.3k 5%	R709	4822 051 30103	10k 5%
L201	4822 157 53869		R203	4822 051 30224	220k 5%	R710	4822 051 30223	22k 5%
L401	4822 156 11106		R301	4822 051 30103	10k 5%	R711	4822 051 30223	22k 5%
L402	4822 156 11108		R302	4822 051 30103	10k 5%	R712	4822 051 30103	10k 5%
L403	4822 156 11108		R303	4822 051 30105	1M 5%	R713	4822 051 30153	15k 5%
L404	4822 156 11107		R304	4822 051 30333	33k 5%	R714	4822 051 30333	33k 5%
L601	4822 157 53873	100µH	R401	4822 051 30222	2.2k 5%	R715	4822 116 82487	0 5%
L701	4822 157 62322		R402	4822 111 90924	680 5%	R717	4822 051 30223	22k 5%
L702	4822 157 53871		R403	4822 111 91369	1.5k 5%	R718	4822 051 30222	2.2k 5%
L711	4822 156 21614		R404	4822 051 30333	33k 5%	R719	4822 051 30223	22k 5%
L712	4822 156 21614		R406	4822 051 30333	33k 5%	R720	4822 051 30334	330k 5%
L713	4822 157 60178		R408	4822 051 30105	1M 5%	R731	4822 051 30154	150k 5%
<b>LAMP</b>			R409	4822 051 30223	22k 5%	R732	4822 051 30153	15k 5%
LP21	4822 134 80169	FL LAMP	R410	4822 051 30479	47 5%	R733	4822 051 30333	33k 5%
<b>LCD DISPLAY</b>			R411	4822 051 30104	100k 5%	R735	4822 051 30103	10k 5%
PL31	4822 130 90922	3" Color LCD	R412	4822 051 30105	1M 5%	R736	4822 051 30472	4.7k 5%
<b>TRANSISTORS</b>			R413	4822 051 30333	33k 5%	R737	4822 051 30103	10k 5%
Q101	4822 130 61425	2SC2873-Y	R414	4822 051 30333	33k 5%	R738	4822 051 30102	1k 5%
Q201	4822 130 61425	2SC2873-Y	R415	4822 051 30473	47k 5%	R739	4822 051 30222	2.2k 5%
Q202	4822 130 61425	2SC2873-Y	R416	4822 051 30222	2.2k 5%	R740	4822 051 30103	10k 5%
Q203	4822 130 43398	2SC2712 GR	R417	4822 111 91192	470 5%	R741	4822 051 30153	15k 5%
Q401	4822 130 43398	2SC2712 GR	R418	4822 051 30101	100 5%	R742	4822 051 30103	10k 5%
Q601	4822 130 43398	2SC2712 GR	R419	4822 100 11463	10k Radio T.	R743	4822 051 30683	68k 5%
Q602	4822 130 43398	2SC2712 GR	R420	4822 100 11608	10k 25%	R745	4822 051 30222	2.2k 5%
Q603	4822 130 43398	2SC2712 GR	R421	4822 051 30102	1k 5%	R746	4822 051 30222	2.2k 5%
Q701	4822 130 61424	2SC 2714 O	R422	4822 051 30222	2.2k 5%	R747	4822 116 82487	0 5%
Q702	4822 130 43398	2SC2712 GR	R501	4822 116 90503	150 5%	R750	4822 051 30471	470 5%
Q703	4822 130 42733	2SA1162 G	R502	4822 116 90503	150 5%	R751	4822 100 11608	10k 25%
Q704	4822 130 42733	2SA1162(G)	R503	4822 051 30152	1.5k 5%	R752	4822 051 30471	470 5%
Q705	4822 130 43398	2SC2712 GR	R504	4822 051 30152	1.5k 5%	R753	4822 051 30152	1.5k 5%
Q706	4822 130 43398	2SC2712 GR	R505	4822 111 91414	10 5%	R754	4822 051 30102	1k 5%
Q707	4822 130 42733	2SA1162(G)	R506	4822 051 30223	22k 5%	R755	4822 051 30105	1M 5%
Q708	4822 130 43398	2SC2712 GR	R507	4822 051 30682	6.8k 5%	R756	4822 051 30224	220k 5%
Q709	4822 130 61884	RN1404	R508	4822 051 30333	33k 5%	R757	4822 051 30224	220k 5%
Q710	4822 130 43398	2SC2712 GR	R509	4822 051 30101	100 5%	R758	4822 051 30684	680 5%
Q711	4822 130 43398	2SC2712 GR	R511	4822 100 11464	47k Volume	R760	4822 051 30472	4.7k 5%
Q712	4822 130 42733	2SA1162(G)	R601	4822 051 30101	100 5%	R761	4822 051 30101	100 5%
<b>RESISTORS</b>			R602	4822 051 30101	100 5%	R762	4822 051 30759	75 5%
R101	4822 051 30105	1M 5%	R603	4822 051 30101	100 5%	R763	4822 051 30102	1k 5%
R102	4822 051 30102	1k 5%	R605	4822 051 30103	10k 5%	R764	4822 051 30683	68k 5%
R103	4822 100 11604	1k 25%	R606	4822 051 30103	10k 5%	R765	4822 051 30223	22k 5%
R104	4822 051 30224	220k 5%	R607	4822 051 30103	10k 5%	R801	4822 051 30104	100k 5%
R105	4822 051 30682	6.8k 5%	R609	4822 051 30103	10k 5%	R802	4822 051 30473	47k 5%
R106	4822 051 30472	4.7k 5%	R610	4822 051 30103	10k 5%	R803	4822 051 30473	47k 5%
R107	4822 051 30103	10k 5%	R611	4822 051 30683	68k 5%	R804	4822 051 30472	4.7k 5%
R108	4822 051 30471	470 5%	R612	4822 051 30333	33k 5%	R805	4822 051 30472	4.7k 5%
R109	4822 051 30224	220k 5%	R613	4822 051 30104	100k 5%	R806	4822 051 30472	4.7k 5%
R110	4822 051 30684	680k 5%	R614	4822 051 30103	10k 5%	R807	4822 051 30105	1M 5%
R111	4822 051 30473	47k 5%	R615	4822 051 30102	1k 5%	R808	4822 051 30332	3.3k 5%
R112	4822 116 82487	0 5%	R616	4822 051 30101	100 5%	R809	4822 051 30334	330k 5%
R113	4822 051 30224	220k 5%						
R121	4822 111 91459	22 5%						
R122	4822 111 91459	22 5%						
R123	4822 111 91459	22 5%						
R124	4822 111 91459	22 5%						
R125	4822 111 91459	22 5%						
R126	4822 111 91459	22 5%						
R127	4822 111 91459	22 5%						
R201	4822 051 30332	3.3k 5%						
R202	4822 051 30332	3.3k 5%						
R203	4822 051 30224	220k 5%						
R301	4822 051 30103	10k 5%						
R302	4822 051 30103	10k 5%						
R303	4822 051 30105	1M 5%						
R304	4822 051 30333	33k 5%						
R401	4822 051 30222	2.2k 5%						
R402	4822 111 90924	680 5%						
R403	4822 111 91369	1.5k 5%						
R404	4822 051 30333	33k 5%						
R406	4822 051 30333	33k 5%						
R408	4822 051 30105	1M 5%						
R409	4822 051 30223	22k 5%						
R410	4822 051 30479	47 5%						
R411	4822 051 30104	100k 5%						
R412	4822 051 30105	1M 5%						
R413	4822 051 30333	33k 5%						
R414	4822 051 30333	33k 5%						
R415	4822 051 30473	47k 5%						
R416	4822 051 30222	2.2k 5%						
R417	4822 111 91192	470 5%						
R418	4822 051 30101	100 5%						
R419	4822 100 11463	10k Radio T.						
R420	4822 100 11608	10k 25%						
R421	4822 051 30102	1k 5%						
R422	4822 051 30222	2.2k 5%						
R501	4822 116 90503	150 5%						
R502	4822 116 90503	150 5%						
R503	4822 051 30152	1.5k 5%						
R504	4822 051 30152	1.5k 5%						
R505	4822 111 91414	10 5%						
R506	4822 051 30223	22k 5%						
R507	4822 051 30682	6.8k 5%						
R508	4822 051 30333	33k 5%						
R509	4822 051 30101	100 5%						
R511	4822 100 11464	47k Volume						
R601	4822 051 30101	100 5%						
R602	4822 051 30101	100 5%						
R603	4822 051 30101	100 5%						
R605	4822 051 30103	10k 5%						
R606	4822 051 30103	10k 5%						
R607	4822 051 30103	10k 5%						
R609	4822 051 30103	10k 5%						
R610	4822 051 30103	10k 5%						
R611	4822 051 30683	68k 5%						
R612	4822 051 30333	33k 5%						
R613	4822 051 30104	100k 5%						
R614	4822 051 30103	10k 5%						
R615	4822 051 30102	1k 5%						
R616	4822 051 30101	100 5%						



## Main Radio and Backlight P.C.Board

R810	4822 051 30684	680k 5%	X403	4822 242 72385	10.7MHz
R811	4822 051 30105	1M 5%	X404	4822 242 72385	10.7MHz
R812	4822 051 30221	220 5%	X405	4822 242 72386	10.7MHz
R813	4822 051 30223	22k 5%	X406	4822 242 72382	19KHz FILTER
R814	4822 100 11605	10k 25%	X601	4822 242 72592	5.56MHz
R815	4822 051 30103	10k 5%	X602	4822 242 72223	4.00MHz
R816	4822 051 30333	33k 5%	X701	4822 242 81071	38.9MHz
R817	4822 051 30102	1k 5%	X702	4822 121 40545	5.5MHz
R818	4822 051 30683	68k 5%			(-/02/08/10)
R819	4822 051 30103	10k 5%	X702	4822 242 72906	6MHz (-/05)
R820	4822 051 30472	4.7k 5%	X703	4822 242 73622	5.5MHz
R821	4822 051 30682	6.8k 5%			(-/02/08/10)
R822	4822 051 30473	47k 5%	x703	4822 242 72187	6MHz (-/05)
R823	4822 100 11605	10k 25%	X704	4822 242 72586	5.5MHz
R824	4822 051 30473	47k 5%			(-/02/08/10)
R825	4822 051 30101	100 5%	X704	4822 242 72907	6MHz (-/05)
R826	4822 051 30101	100 5%	X801	4822 242 72593	4.43MHz
R827	4822 051 30101	100 5%	<b>STABILIZERS</b>		
R828	4822 051 30153	15k 5%	Z401	4822 130 81672	6.2V ZENER
R829	4822 051 30333	33k 5%	Z402	4822 130 32955	5.1V ZENER
R830	4822 051 30473	47k 5%	Z601	4822 130 81171	4.3V ZENER
R831	4822 051 30473	47k 5%			
R832	4822 051 30333	33k 5%			
R833	4822 051 30473	47k 5%			
R834	4822 051 30333	33k 5%			
R835	4822 051 30333	33k 5%			
R837	4822 051 30333	33k 5%			
R838	4822 051 30473	47k 5%			
R840	4822 111 91459	22 5%			
R841	4822 051 30153	15k 5%			
R842	4822 051 30105	1M 5%			
R843	4822 051 30105	1M 5%			
R844	4822 051 30105	1M 5%			
R845	4822 051 30105	1M 5%			
R846	4822 051 30105	1M 5%			
R847	4822 051 30105	1M 5%			
R848	4822 051 30105	1M 5%			
R849	4822 051 30105	1M 5%			
R850	4822 051 30105	1M 5%			
R851	4822 051 30105	1M 5%			
R854	4822 051 30105	1M 5%			
R855	4822 051 30105	1M 5%			
R856	4822 051 30105	1M 5%			
R857	4822 051 30105	1M 5%			
R858	4822 051 30102	1k 5%			
<b>SPEAKER</b>					
SP51	4822 240 30548	SPEAKER			
<b>SWITCH</b>					
S101	4822 277 21551	POWER			
S401	4822 277 21286	AM/FM			
S601	4822 276 13185	PUSH SW			
S602	4822 276 13185	PUSH SW			
S603	4822 276 13185	PUSH SW			
S604	4822 276 13185	PUSH SW			
S605	4822 276 13185	PUSH SW			
S606	4822 276 13185	PUSH SW			
<b>TRANSFORMERS</b>					
T101	4822 146 30835	POWER			
T201	4822 146 21653	BACK Light			
<b>CRISTALS AND FILTERS</b>					
X401	4822 156 11105	GF-WE1			
X402	4822 242 72381	AWF FILTER			